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United States
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Agriculture

Forest Service

Tongass
National
Forest

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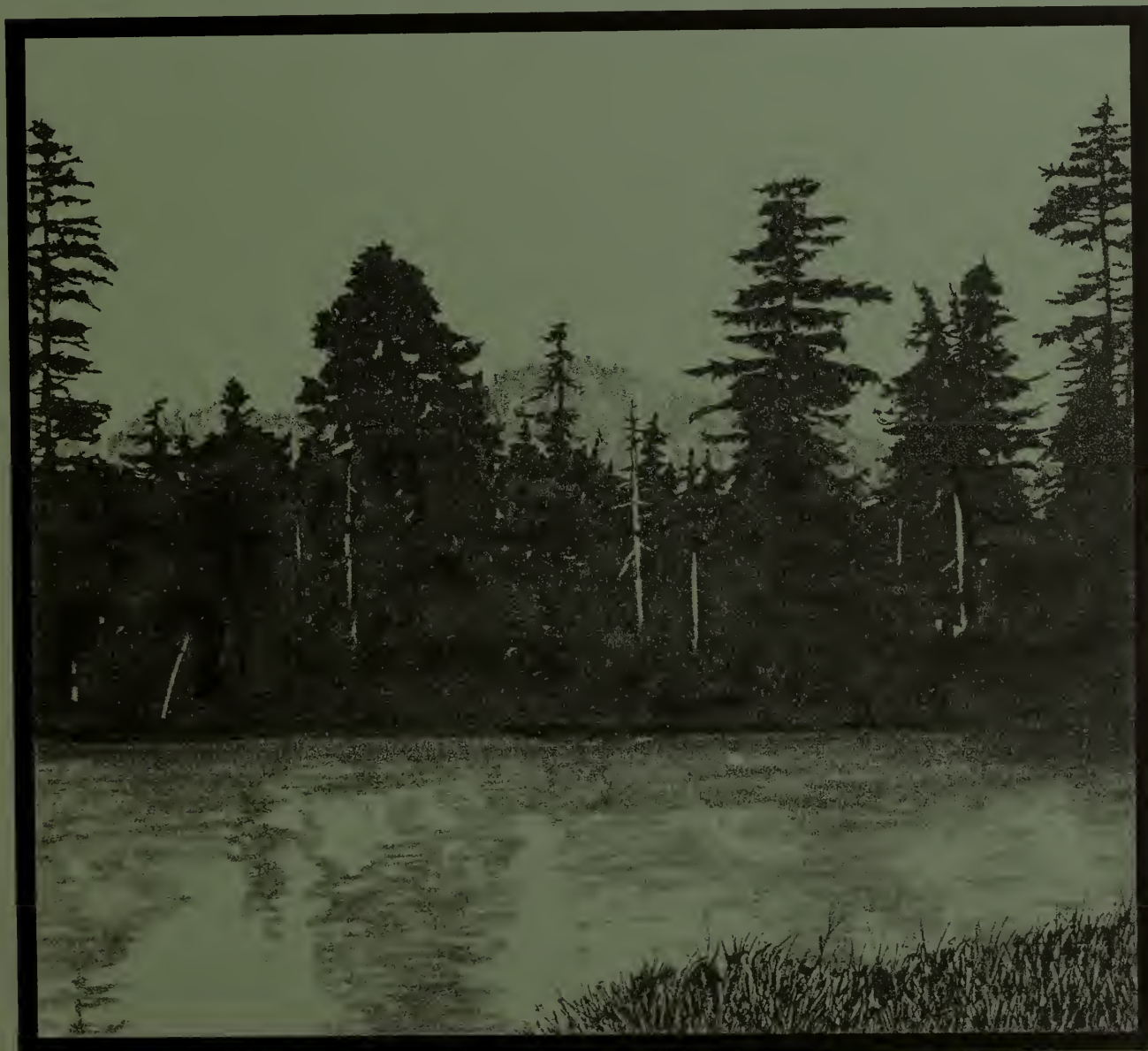
October 1995



Control Lake Timber Sale

Draft Environmental Impact Statement

Summary



**Foster Wheeler Environmental Corporation
10900 NE 8th Street
Bellevue, Washington 98004
Contract No. 53-0109-3-00369
Control Lake Environmental Impact Statement**





United States
Department of
Agriculture

Forest
Service

Alaska Region

Tongass National Forest
Ketchikan Area
Federal Building
Ketchikan, AK 99901

File Code: 1950

Date: October 30, 1995

Dear Planning Participant:

Enclosed is the Draft Environmental Impact Statement (EIS) for the Control Lake Project Area.

If you received a complete set of documents, the following items should be found in the package:

1. Summary
2. Draft Environmental Impact Statement (Volume I)
3. Draft Environmental Impact Statement, Appendices A, B, C, D, E, G, and H (Volume II)
4. Draft Environmental Impact Statement, Appendix F (Volume III)
5. Large scale color Project Area Map

Note that 11" x 17" color maps of each alternative are included in Volumes I and II.

If you elected to receive the Summary only, you will find 11" x 17" alternative maps bound into the document as well as a large-scale Project Area Map included with the Summary.

You are encouraged to review and comment on the Draft EIS. Written comments must be received by December 26, 1995. Comments should be addressed to:

Forest Supervisor
Ketchikan Area
Tongass National Forest
Attn: Control Lake EIS
Federal Building
Ketchikan, AK 99901





Subsistence hearings will be held in Klawock, Thorne Bay, and Coffman Cove. Each subsistence hearing will be preceded by an open house to answer questions you may have. An additional hearing to receive your comments on the Draft EIS will be held in Ketchikan. The schedule of hearings and open houses is as follows:

<u>Date</u>	<u>Open House Time</u>	<u>Subsistence Hearing Time</u>	<u>Community</u>	<u>Location</u>
December 4	6-7:00 pm	7-9:00 pm	Ketchikan	Westmark Cape Fox
December 5	6-7:00 pm	7-9:00 pm	Klawock	ANB Hall
December 6	6-7:00 pm	7-8:30 pm	Thorne Bay	Bay Chalet
December 7	6-7:00 pm	7-8:30 pm	Coffman Cove	City Hall

I encourage you to take the time to review and comment on the Draft EIS, as well as to participate in the subsistence and public hearings. Your input will be used to prepare the Final EIS and the Record of Decision. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,

BRADLEY E. POWELL
Forest Supervisor

Enclosures



Draft Environmental Impact Statement

Control Lake

United States Department of Agriculture
Forest Service—Alaska Region
Alaska

Lead Agency

U.S.D.A. Forest Service
Tongass National Forest
Ketchikan Administrative Office

Responsible Official

Forest Supervisor
Ketchikan Administrative Area
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

For Further Information

Dave Arrasmith
Planning Staff Officer
Ketchikan Administrative Area
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907 225-3101

Abstract

The Forest Service proposes to harvest approximately 187 million board feet (MMBF) of timber in the Control Lake Project Area. Timber volume would be offered to the Ketchikan Pulp Company (KPC) under the KPC Long-term Timber Sale Contract or to other timber companies under the Ketchikan Area Independent Timber Sale Program. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land Management Plan (TLMP 1979a, as amended) and the Tongass Timber Reform Act. They also propose management consistent with the standards and guidelines of the TLMP Draft Revision Supplement (1991a). The Draft EIS describes five alternatives which provide different combinations of resource outputs and spatial locations of harvest units. The alternatives are: (1) No Action, proposes no new harvest from the Project Area at this time; (2) proposes to harvest the level allowable at this time under Forest Plan implementation (i.e., about 233 MMBF); (7) responds to scoping concerns related to entry into the Western Peninsula (Elevenmile Area) and upper Rio Roberts Watershed and produces approximately 180 MMBF; (8) responds to scoping concerns related to entry into the Honker Divide area and produces approximately 184 MMBF; and (9) minimizes harvest in the Honker old-growth block, avoids harvest in the Rio Roberts corridor, minimizes harvest in the Western Peninsula, and allows harvest at the Forest Plan implementation level in most other zones.

Summary

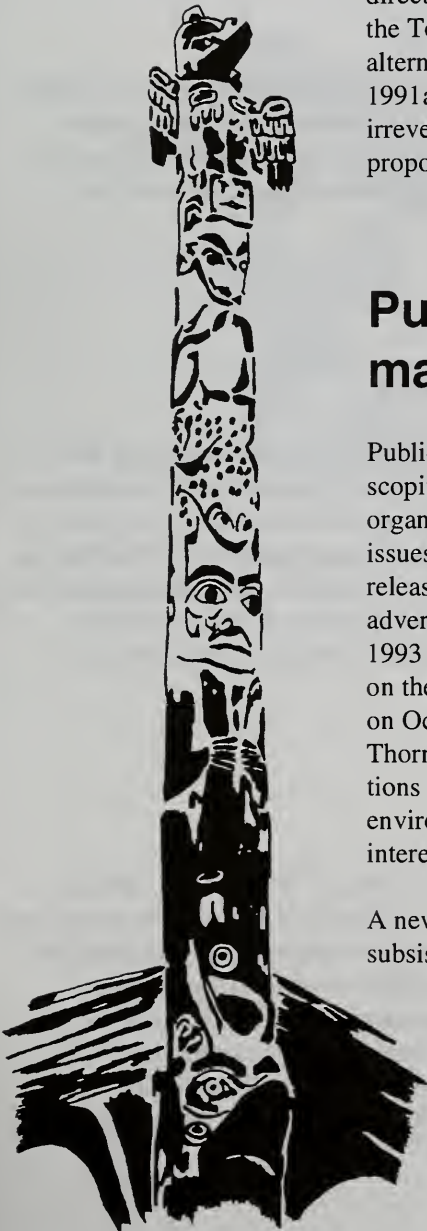
Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations, the Forest Service has prepared this Environmental Impact Statement (EIS) on the effects of timber harvest in the Control Lake Area (Figure S-1) on Prince of Wales Island, Alaska. The proposed action would make approximately 187 million board feet (MMBF) of timber available for harvest to the Ketchikan Pulp Company (KPC) under its Long-term Timber Sale Contract with the Forest Service, or the Ketchikan Area Independent Timber Sale Program. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land Management Plan (TLMP 1979a, as amended) and the Tongass Timber Reform Act. They also propose management consistent with the preferred alternative (Alternative P) in the TLMP Draft Revision Supplement (TLMP Draft Revision 1991a). The EIS discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from each alternative proposed.

Public Participation in the Decision-making Process

Public involvement in the process began formally on September 27, 1993 with the mailing of a scoping package to individuals, government agencies, Native corporations, and interested organizations describing the proposed action and inviting public comment on the scope of the issues and areas of major concern to be addressed by the environmental analysis. A news release was also issued on October 4, 1993, announcing the scoping process. Newspaper advertisements were placed in the *Ketchikan Daily News* and the *Island News* on October 4, 1993 containing much of the same information as in the scoping package and inviting comment on the scope. A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on October 6, 1993. Public scoping meetings were held in Klawock on October 18, 1993; in Thorne Bay on October 20, 1993; and in Ketchikan on October 20, 1993. Individual consultations were held from June 1993 through October 1994 with community representatives, environmental organizations, timber industry representatives, agency representatives, and other interested parties.

A news release, announcing the availability of the Draft and announcing the schedule for subsistence hearings and public open houses, was issued.



Summary

Subsistence hearings on the Draft EIS will be held in Klawock, Thorne Bay, Coffman Cove, and Ketchikan. Open houses will also be held in conjunction with the subsistence hearings to discuss the analysis process and answer public questions on the Draft EIS. Public comment on the Draft EIS will also be accepted at that time. Comments will be recorded and transcribed.

Release of the Draft EIS triggers a minimum 45-day public comment period. The period for public comment on this Draft EIS and the deadline for receipt of written comments are noted in the cover letter accompanying this document and will be publicized in the local media. Written comments on the EIS can be mailed to:

Forest Supervisor
ATTN: Control Lake EIS
Tongass National Forest
Federal Building
Ketchikan, AK 99901

Decision to be Made

Based on the information contained in this EIS, the Forest Supervisor will decide to (1) select one of the alternatives presented in the Final EIS, (2) modify an alternative as long as the environmental consequences of that action have been fully analyzed in the Final EIS, or (3) reject all alternatives and request further analysis. If an alternative is selected, it will be documented in the Record of Decision (ROD).

Purpose and Need for Action

The purpose and need for action is two-fold. First, it is to provide timber volume that will contribute to a 3-year current timber supply for the KPC contract (Section BO.61) and/or to the Ketchikan Area Independent Timber Sale Program; for this project that volume is approximately 187 MMBF. Second, it is to move toward the desired future condition as identified in the current Forest Plan (TLMP 1979a, as amended) and in the Tongass Land Management Plan (TLMP) Draft Revision (TLMP 1991a). This desired future condition is described in the current Forest Plan under the Management Direction/Emphasis for each management area.

Project Area

The 201,371-acre Control Lake Project Area is located on Prince of Wales Island, approximately 50 air miles west of Ketchikan, Alaska (Figure S-1). Craig and Klawock lie to the south of the Project Area and Thorne Bay to the east. The Project Area contains the proposed Rio Roberts Research Natural Area, designated to allow natural processes to evolve without measurable human influence for research and development purposes. The Thorne River and Hatchery Creek combine to form a free-flowing river corridor along the eastern edge of the Project Area. This corridor is referred to in this EIS as the Honker Divide, extending for about 42 miles from Barnes Lake to the Thorne River estuary. The corridor offers nationally

Figure S-1

Project Vicinity Map



Summary

recognized recreation opportunities including canoeing, fishing, wildlife viewing, and hunting. Parts of the river system are recommended in the TLMP Draft Revision (TLMP 1991a) for addition to the National Wild and Scenic Rivers System as a combination Scenic/Recreational River.

Background

KPC Long-term Contract

The Forest Service signed a Long-term Timber Sale Contract with the KPC on July 26, 1951 authorizing the KPC to purchase up to approximately 8.25 billion board feet (BBF) of timber throughout the contract area. Under the terms of the contract, modified in 1991, the Forest Service is required to “develop a tentative Offering schedule. . . [which] shall list sufficient timber volume and schedule commencement of the NEPA process. . . to provide [KPC] a Current Timber Supply sufficient for at least three years of operations. . . .” Further, the Forest Service is required to “seek to specify sufficient Offerings to maintain a Current Timber Supply in all Offering areas that totals at least three years of operations. . . and which meets the production requirements of [KPC’s] manufacturing facilities.”

A 3-year supply of timber for KPC's operations under the contract is currently estimated to range from 556.2 to 557.5 MMBF. As of June 1, 1995, KPC had a current timber supply of approximately 193 MMBF. The maximum volume of timber that can be provided to KPC from within the contract area in the remainder of fiscal year 1995 and during 1996 and 1997, is about 423 MMBF. The timber supply remaining at the end of 1995, 1996, and 1997 would fall well short of meeting the objective of specifying a 3-year supply for operations under the contract, considering on-going harvest at either maximum or historic rates.

The Forest Service has made efforts to accelerate the preparation of new offerings within the contract area. However, because of the amount of time required to prepare new offerings in accordance with applicable laws, none of this volume is projected to be available until after fiscal year 1997. It remains to be seen how much of the volume in preparation will be cleared through the NEPA process and when it will be available.

Consequently, additional timber from outside the KPC contract area is needed in order to meet the three-year timber supply objective. Sale offerings currently scheduled, undergoing NEPA evaluation, or at some other stage in the preparation process are projected to be needed to help meet the KPC Long-term Contract and Independent Sale Program's three-year supply objectives. If any currently planned independent sales were converted to KPC contract offerings, equivalent volume currently planned for KPC contract offerings would then need to be substituted as independent sale offerings. The first offerings from the Control Lake Project Area could be made available in 1997 to help meet either three-year supply objective.

Why the Control Lake Project Area was Selected

In accordance with the background described above, the Control Lake Project Area was selected for environmental analysis for the following reasons:

- Earlier NEPA actions evaluating or authorizing timber harvest are already active throughout the KPC contract PSA. Withdrawal of lands within the PSA through legislative action (e.g., Tongass Timber Reform Act) has also reduced the availability of harvestable timber. Beginning with the Polk Inlet Project, the Forest Service moved to the next step as stipulated in the KPC contract, namely harvest in “additional cutting areas” outside the PSA. The Control Lake Project Area is in the contingency area. The Project Area contains a sufficient amount of harvestable timber volume under the Forest Plan. Available informa-

tion indicates that harvest of the amount of timber being considered for this project can occur within the Forest Plan (TLMP 1979a, as amended; TLMP 1991a) standards and guidelines.

- Other areas with available timber inside the contract area have or will be scheduled for harvest during the remainder of the KPC contract term. The sequence in which these areas are harvested would cause little difference in the effect on subsistence resources. Harvesting other areas on the Tongass National Forest would likely have similar potential effects on resources, including those used for subsistence, because of the widespread distribution of subsistence use. Harvest within these other areas is probable, in any case, over the forest planning horizon under either the existing or Draft Revision Forest Plan.
- It is reasonable to schedule harvest in the Control Lake Project Area now rather than in other areas in terms of:
 - previous harvest entry and access;
 - effects on subsistence; and
 - ability to complete the NEPA process and make timber available to contribute to the Ketchikan Area's Forest Plan timber program, including KPC contractual requirements, by the time it is reasonably necessary to do so.

For additional details on why the Control Lake Project Area was selected, see Appendix A in Volume II.

Relationship to Forest Plan

The National Forest Management Act of 1976 (NFMA) directs each National Forest to prepare an overall plan of activities. The Forest Plan provides land and resource management direction for the forest. It establishes Land Use Designations (LUD's) to guide management of the land for certain uses. The LUD's describe the activities that may be authorized within the Value Comparison Units (VCU's), the boundaries of which usually follow easily recognizable watershed divides.

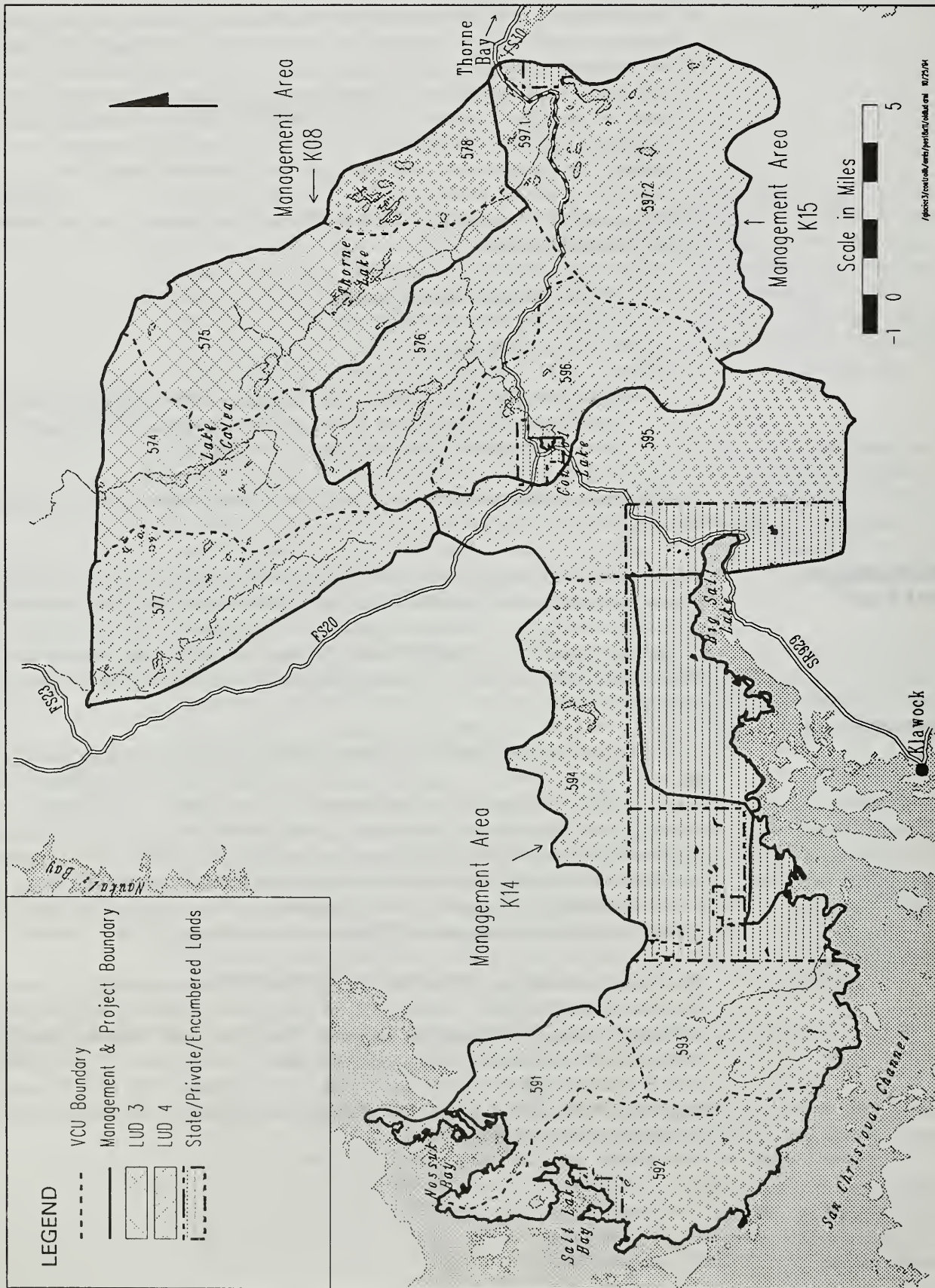
For the Tongass National Forest, the Forest Plan is the TLMP of 1979, as amended in 1986 and again in February 1991 as a result of the Tongass Timber Reform Act (TTRA). The Forest Plan currently is undergoing revision as required by the NFMA. A Supplement to the TLMP Draft EIS (the Draft Revision) was issued in 1991 (TLMP 1991a). Until the Record of Decision (ROD) for the Draft Revision is signed, the TLMP (TLMP 1979a, as amended) remains in effect. References in this document to the TLMP Draft Revision mean Alternative P of the Revision Supplement to the Draft EIS, unless otherwise noted. Figure S-2 displays the VCU's, Management Areas, and LUD's defined by the TLMP (1979a, as amended).

The Control Lake EIS tiers to the TLMP EIS (TLMP 1979a, as amended) and the Alaska Regional Guide EIS (1983). It also proposes management consistent with the preferred alternative (Alternative P) standards and guidelines in the TLMP Draft Revision (TLMP 1991a). In some instances, it incorporates documented analysis from TLMP or the TLMP Draft Revision by reference (40 Code of Federal Regulations [CFR] 1502.21) rather than repeating it in this EIS. In cases of conflicting land designations, the most restrictive standards and guidelines were applied.

Summary

Figure S-2

VCU's, Management Areas, and TLMP LUD's



Issues

Based on the consultation conducted with members of the public and government agencies, the scoping comments received on the Control Lake Project, and the internal scoping process, 7 issues were identified that were determined to be significant and within the scope of this EIS. These 7 issue areas, Issues 1 through 7 below, represent concerns raised by the public, agencies, Native Alaskan tribal governments, or the Forest Service. They were addressed through alternative development, and the environmental consequences of the alternatives have been analyzed in terms of these issues. Issues A, B, and C, presented at the end of this section, represent issues considered but eliminated from detailed study because their resolution falls outside the scope of the Control Lake Project.

Significant Issues

Issue 1: Honker Divide

A key public concern is the use of the Honker Divide area, a nationally recognized recreation corridor. Some respondents advocate protecting the area from timber harvest and road construction. Definitions of the Honker Divide area vary but some respondents advocate a protected area that contains the lands from ridge top to ridge top, including the Control Creek basin. Some, however, desire additional roaded access points to the lake and river system which they say would increase recreational opportunities. Several commenters cited the high value of the Honker Divide wildlife habitat and referred to the Honker Habitat Conservation Area (HCA) and Viable Population (VPOP) Committee recommendations as ways to maintain a functioning old-growth ecosystem on Prince of Wales Island. Others cite Honker Divide as particularly important for fish habitat.

Issue 2: Recreation and Visual Quality

In addition to the interest in the Honker Divide from a recreational standpoint, commenters expressed concern with the recreation impact of the loss of roadless areas on Prince of Wales Island. Some advocated maintaining the visual quality of the 30 Road Corridor and Cutthroat Lakes Area. This heavily used travel route (to Thorne Bay) includes the Eagles Nest Campground and Control Lake. Some of the most popular fishing holes occur in this area (e.g., between the 30 Road and the Thorne River). The trail to the lower Rio Roberts Watershed fish pass is heavily used, and some noted that harvesting the area adjacent to the trail would affect the aesthetics of fish viewing.

Issue 3: Subsistence

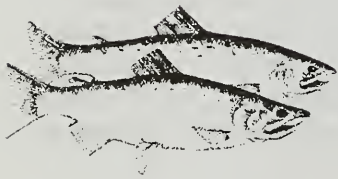
This issue centers around the potential effects, including the cumulative effects, of timber harvest and road construction on the abundance and distribution of subsistence resources, and the opportunities for harvest of these resources. Commenters noted that roads reduce subsistence opportunities; they also make it easier for wolves to cover territory faster, increasing their successful predation of deer. Some commenters, however, want roads left open after logging is completed for ease of access and to facilitate deer harvest. Some expressed concern specifically with the effects of timber harvest in the Western Peninsula because of the high subsistence use there by the residents of Klawock and Craig. Concern ranges from diminished subsistence resources to increased competition for subsistence resources due to the presence of logging roads. This area has unique cultural significance for Alaska Natives, especially from Klawock.

Issue 4: Wildlife Habitat and Biodiversity

The Project Area provides important wildlife habitat and the wildlife supported are valuable for subsistence, recreational, aesthetic, economic, and ecological purposes. Of primary concern are the effects of timber harvest and associated road construction on species dependent on old-growth forest habitat. Also of concern are the effects that timber harvest operations would have, due to the fragmentation of existing large blocks of old-growth habitat and the potential decline in biological diversity. This issue relates to a number of different conservation strategies including those involving habitat conservation areas (HCA's). This issue also includes the long-term disposition of previously mapped old-growth areas (or other areas as old-growth retention) in the Project Area.

On July 27, 1995, the President signed Public Law 104-19 into effect. This law restricts the Forest Service from implementing HCA's, except for HCA's up to 300 acres in size around active goshawk nests. To fully address the wildlife and biodiversity issue, however, the effects on identified HCA's are described in this EIS.

Issue 5: Fish Habitat and Water Quality



This issue addresses public concern for maintaining water quality in streams and nearshore marine waters that provide habitat for anadromous, resident, and marine fish. Streams and streamside habitat throughout the Project Area provide important shelter, food, spawning, and rearing areas for anadromous and resident fish. Crabs, shrimp, clams, mussels, and various marine fish are found in the estuaries and marine waters associated with the Project Area. Some expressed concern about harvest on steep, unstable slopes, and about additional harvest and road-building in the Rio Beaver Watershed. Others objected to timber harvest in the Rio Roberts Watershed, which provides a good control for fish and water quality studies.

Issue 6: Timber

This issue encompasses public concern with the amount of timber available and proposed for harvest. Specific issues include maintaining a timely and sufficient timber supply to the timber industry, whether timber harvest should be continued, how to balance timber production with other Forest uses, and how to apportion the harvest. It includes the issue of how the Project Area contributes to the long-term timber supply and whether too much timber is being harvested at this time on Prince of Wales Island. This issue also relates to maintaining the economic viability of future entries in the Project Area; but it also relates to the concern for developing alternatives that can avoid below-cost sales. Some argue that the harvest units in the Western Peninsula, specifically, are not economic. It includes the question of how much helicopter logging should be used because of the expense of such logging. Public concern also includes the fact that the Project Area historically has been designated for the independent sales program because it is outside the KPC primary sale area. If timber is harvested to supply the KPC, some question whether there will be enough volume left for independent sales. Finally, several commenters said that the purpose and need for the project should not be tied to a specific volume; 187 MMBF may be too high for this area.

Issues 7: Karst and Cave Resources

Concern with this issue centers on how cave and karst resources in the Project Area will be managed. Although cave systems and karst occur in the Control Lake Project Area, they are less extensive than on other areas on northern Prince of Wales Island. Recent studies reveal that extensive cave systems and other karst features throughout Prince of Wales Island repre-

Issues Outside the Scope of this EIS

sent a complex ecosystem involving hydrology, fisheries production, high wildlife value, and high timber productivity. Caves also have a higher probability of cultural resources. Significant cave systems require protection under the Cave Resource Protection Act of 1988.

The following items raised in scoping letters fall outside the scope of this project-specific EIS.

- A. Consider Honker Divide for "wild" status under Wild and Scenic Rivers Act. This is a Forest planning issue. Wild and Scenic River eligibility and suitability analyses and recommendations for designations are being dealt with during the current Forest planning process.
- B. The lack of an updated TLMP is a critical issue. This is a Forest planning issue. The current Forest Plan is under revision.
- C. Below-cost timber sales should end. This is a national issue and not within the scope of an individual project.

Development of Alternatives

Each alternative presented in this Environmental Impact Statement (EIS) represents a different response to the issues. Four action alternatives were developed that meet the stated purpose and need of the project. Each action alternative consists of a site-specific proposal developed through intensive interdisciplinary team evaluation of timber harvest unit and road design based on ground verification of all units and roads considered, along with 1991 color aerial photos, topographic maps, and a large quantity of available resource data in Geographic Information System (GIS) format.

Scoping for the Control Lake Project began in June 1993. The Interdisciplinary (ID) Team reviewed and analyzed the issues developed during scoping and identified the significant issues. Options for addressing the issues were discussed and areas of overlap among methods of addressing issues were examined by the ID Team. Issues identified as significant were categorized according to whether they: (1) are dealt with by land use allocations at the Forest Plan level; (2) will be addressed through implementation of standards and guidelines defined by the Forest Plan; (3) can be addressed through project-specific mitigation measures; (4) can be addressed through unit allocation under all or most alternatives; (5) should be used to drive or partially drive an alternative; or (6) are beyond the scope of this EIS. The issues placed in categories 4 and 5 were the primary factors considered by the ID Team in the development of the frameworks for the action alternatives.

Concurrent with scoping and the ID Team review of scoping issues, logging and transportation engineers and resource specialists from the ID Team developed a detailed Logging System and Transportation Plan that was specific to the Control Lake Project Area and consistent with the Tongass Land Management Plan (TLMP) Revision Supplement to the Draft EIS (TLMP Draft Revision 1991a). This plan was based on previous logging and transportation system plans available for portions of the Project Area, updated topographic maps, 1991 aerial photos, and the available GIS data. In developing the plan, the ID Team identified harvest unit boundaries for all suitable and available commercial forest land in the Project Area, including those areas accessible only by helicopter, and identified the road system required to access these lands.

Summary

The ID Team then conducted an intensive review of the Logging System and Transportation Plan and identified how much area could be harvested at this time consistent with Forest Plan standards and guidelines. The major factors limiting the number of potential harvest units available for allocation were: (1) adjacency; (2) cumulative visual disturbance; and (3) cumulative watershed effects. Based on this review, 335 harvest units and associated roads, representing one possible configuration, were identified.

These 335 harvest units represented the pool of units available for allocation to the action alternatives. Available aerial photos, topographic maps, and GIS plots and data for each of these units were reviewed and each unit was ground-verified by a team of specialists during summer 1993. Ground verification included preliminary flagging of unit boundaries, including buffers, and observations regarding watershed, soils, caves, fish and wildlife habitat and presence, and visual, recreation, and cultural resources. Preliminary road routes were also examined for feasibility and flagged by road locators. Based on ground verification, 85 units were deferred or eliminated from consideration during this study for a variety of reasons. These reasons included very high mass movement soils, stands having less than 8,000 board feet (MBF) of timber volume per acre, adjacency, and other factors. Many of these units would be available in future entries. In addition, the boundaries of most units were modified (generally the units were made smaller) and the locations of most roads were changed based on what was observed on the ground. The resulting pool of units was reduced from 335 to 250 units. Appendix C provides a summary of the characteristics of these harvest units. Unit and road design cards are provided in Appendices F and G. A sample of field forms, unit and road cards, and the integrated silvicultural prescriptions for an individual unit are provided for one unit in Appendix H.

Ecosystem Management

Ecosystem management is a concept of natural resources management wherein National Forest activities are considered within the context of economic, ecological, and social interactions within a defined area or region over both short- and long-term. Ecosystem management is applied at several scales including the landscape level and the stand level. During field work observations on vegetation, stand, and wildlife habitat characteristics were made in each harvest unit. Subsequent to the field season the Control Lake ID Team used these observations in conjunction with landscape-level considerations to subdivide the Control Lake Project Area into a variety of landscape zones. Definition of these landscape zones considered such aspects as the amount, distribution and fragmentation of old-growth forests, the level and distribution of previous timber harvest and roading, travel and dispersal corridors between zones that can be used by animals, the existing and potential road network for accessing timber, subsistence uses, visually sensitive areas, and important recreation areas. The landscape zones also considered the recommendations of the VPOP Committee on such aspects as small, medium, and large Habitat Conservation Areas (HCA's). The landscape level considerations included the characteristics of the Control Lake Project Area itself as well as its relationship to adjacent areas such as Central Prince of Wales, Karta Wilderness, and private land along Big Salt Lake. Consideration was given to social factors (including subsistence use, visual concerns, and recreation) and proposed land use designations in the development of landscape zones. The 20 landscape zones defined by the ID Team are described in Table S-1 and their locations are shown in Figure S-3 (Maps 1 and 2).

During the ID Team review process, each timber harvest unit was individually evaluated with regards to its specific characteristics and its location within each landscape zone. Using these observations, the ID Team applied one of nine different silvicultural prescriptions to individual settings within each timber harvest unit. These silvicultural prescriptions range from clearcuts to partial cuts, to small group and individual tree selection. All prescriptions leave some level of structure within a unit. Structure is provided by retaining some combination of understory shrubs and trees, unmerchantable trees, merchantable trees, and snags. These structural elements provide foraging, resting, reproductive, living, and dispersal habitat for a variety of plant and animal species and contribute to the maintenance of viable populations across the landscape.

At the stand level, the intention is to use partial cutting or selective harvest where the landscape zone or other site factors indicate that there is high value in doing so and silvicultural knowledge and the recommended logging system indicate that it has a good chance of succeeding. Within landscape zones that provide particularly important wildlife habitat, harvest units generally received partial cutting prescriptions. In individual cases, concern about blowdown, mistletoe infection, or logging system constraints resulted in clearcut prescriptions. In other landscape zones, harvest units generally received some form of clearcut prescription. In individual cases, concern about the level of previous harvest or the lack of structure or snags in the specific area resulted in partial cutting prescriptions. These prescriptions are universally applied to each specific unit within each alternative in which it appears. Consequently, these ecosystem management principals are applied in all action alternatives.

Table S-1

Control Lake Project Area Landscape Zones

Landscape Zones	Description
1. Honker Watershed	The Honker Watershed (92,513 acres) is the largest division in the Control Lake Project Area. It contains several other landscape zones including the Honker Block, Honker Scenic Corridor, Upper Cutthroat Lakes, Drumlin Field, and Rio Roberts Research Natural Area. The Honker Watershed is connected to adjacent areas by the Baird Peak, Rio Roberts, and Angel Lake Late-successional corridors. Its important values and functions include watershed and fisheries, and wildlife habitat. It was defined because of the importance of the Thorne River and Hatchery Creek Watersheds for anadromous fish and to respond to the issue that the entire Honker Watershed should be protected from timber harvest.
2. Honker Block	The Honker Block (43,963 acres) is contained within the Honker Watershed. This block provides a core area of unfragmented old-growth habitat where significant populations of old-growth dependent species can be maintained. These populations can provide immigrants to adjacent areas that have experienced extensive timber harvest as these areas undergo changes from early- to late-successional habitats. The Honker Block is connected to adjacent areas by the Goshawk Post-fledging Area, Baird Peak, Rio Roberts, Balls Lake, and Angel Lake Late-successional corridors. It is contiguous with the Sweetwater Lake/ Hatchery Creek old-growth habitat area identified in the Record of Decision for the Central Prince of Wales EIS. Together, the Honker Block and Sweetwater Lake/ Hatchery Creek area produce a very large old-growth block.
3. Honker Scenic Corridor	The Honker Scenic Corridor (19,783 acres) is contained within the Honker Block and includes the Scenic/Recreational River LUD defined by the TLMP Draft Revision Supplement plus an additional 1/4 mile (on each side of the corridor) as defined in the 1984-89 Long-term Sale EIS. The Honker Scenic Corridor provides recreational experiences such as canoeing, hiking, and scenic enjoyment. The Honker Scenic Corridor also serves as a late-successional corridor linking the Honker Block to the Sarkar Lakes Block in the Central Prince of Wales (CPOW) Project Area. Corridors provide old-growth habitat which allows old-growth dependent species to migrate between larger areas of old-growth habitat such as small, medium, and large old-growth blocks.
4. Baird Peak Late-successional Corridor	This corridor (2,105 acres) connects the Honker Block with the Baird Peak Block in the CPOW Project Area. Corridors provide old-growth habitat which allows old-growth dependent species to migrate between larger areas of old-growth habitat such as small, medium, and large old-growth blocks.

Table S-1 (continued)

Control Lake Project Area Landscape Zones

Landscape Zones	Description
5. Goshawk Post-fledging Area (PFA) Late-successional Corridor	This corridor (1,624 acres) connects the Honker Block with the goshawk PFA in the northwestern corner of the Project Area. Corridors provide old-growth habitat which allows old-growth dependent species to migrate between larger areas of old-growth habitat such as small, medium, and large old-growth blocks.
6. Goshawk PFA Block	The Goshawk PFA (2,825 acres) Block lies in the northwestern corner of the Project Area and includes the PFA identified for the goshawk nest discovered in the vicinity. It serves as a small old-growth block and connects with the CPOW corridor that runs between the Staney Creek and Sweetwater Lake/Hatchery Creek Blocks.
7. Upper Cutthroat Lakes	This zone (2,960 acres) corresponds with the area identified by the Honker Divide Management Plan as being removed from the regulated timber base. It provides significant recreational, visual, wildlife, and aquatic resources.
8. Drumlin Field	This zone (13,609 acres) corresponds with the area generally between the lower Thorne River and the 30 Road where the topography and vegetation are controlled by drumlins. This area has a relatively low elevation plus natural fragmentation. These characteristics increase the value of the drumlin field as winter range and habitat for old-growth species. Additionally, the depressions between the numerous drumlins create a variety of wetland and aquatic habitats.
9. 30 Road Corridor	This corridor (5,323 acres) runs along the 30 Road from the Control Lake junction to Thorne Bay. Presently this travel corridor is relatively unharvested. Though not classified as a high-priority travel route, it is identified here to address the visual and recreational issues associated with its unharvested characteristics and the access it provides to the lower Thorne River and other creeks that the 30 Road crosses.
10. Rio Roberts Watershed	This zone (7,170 acres) is identified to address a number of issues regarding the Rio Roberts Watershed including the fact that it is essentially unharvested and unroaded old-growth habitat, could serve as a control watershed, and contains the Rio Roberts Late-successional Corridor.
11. Rio Roberts Late-successional Corridor	This corridor (2,791 acres) is contained almost completely within the Rio Roberts Watershed and connects the Honker Block with the western portion of the Karta Wilderness Block to the south.
12. Rio Roberts RNA	The Rio Roberts Research Natural Area (1,605 acres) boundary is defined by the TLMP Draft Revision Supplement (1991a). The RNA contains old-growth habitat, wetland and riverine complexes and is entirely within the Drumlin Field. This landscape zone sustains a variety of old-growth and aquatic species.

Table S-1 (continued)

Control Lake Project Area Landscape Zones

Landscape Zones	Description
13. Angel Lake Late-successional Corridor	This corridor (2,096 acres) is in the southeast corner of the Project Area and connects the Honker Block with the eastern portion of the Karta Wilderness Block.
14. Balls Lake Late-successional Corridor	This corridor (3,356 acres) connects the Honker Block, in the vicinity of Balls Lake, with the Kogish Mountain Corridor.
15. Kogish Mountain Late-successional Corridor	This zone (9,267 acres) represents a combination of a late successional corridor and small old-growth block. It connects the old-growth and late-successional habitats in the eastern portion of the Project Area with those in the western portion. A small block of old-growth, the Election Creek Block, is identified in an unharvested portion of the upper valley.
16. Western Peninsula	The Western Peninsula (35,106 acres) provides important wildlife habitat. Because of its high degree of natural fragmentation, old-growth patches in the zone have high importance. The area is mostly unroaded and receives extensive subsistence use by the residents of Klawock and Craig using marine access. There are also cultural, visual, and recreational resources associated with the western shoreline. It includes the area known as the Elevenmile area.
17. Elevenmile Late-successional Corridor	This corridor (1,453 acres) lies within the Western Peninsula and connects the Kogish Mountain Corridor with the Elevenmile Block in the western portion of the Project Area.
18. Elevenmile Block	The Elevenmile Block (5,901 acres) is located within the Western Peninsula zone and represents a small old-growth block in the southeastern portion of that area. It represents the largest area of moderate volume old-growth habitat on the Western Peninsula.
19. Western Shoreline Late-successional Corridor	This corridor (5,508 acres) lies within the Western Peninsula and connects the Elevenmile Block with the Salt Lake Bay Block and beyond it to the Stanley Creek Block in the CPOW Project Area.
20. Salt Lake Bay Block	This block (5,092 acres) corresponds with the Semi-primitive Recreation LUD defined by the TLMP Draft Revision Supplement around Salt Lake Bay and represents a small old-growth block.

Figure S-3
Map of Landscape Zones

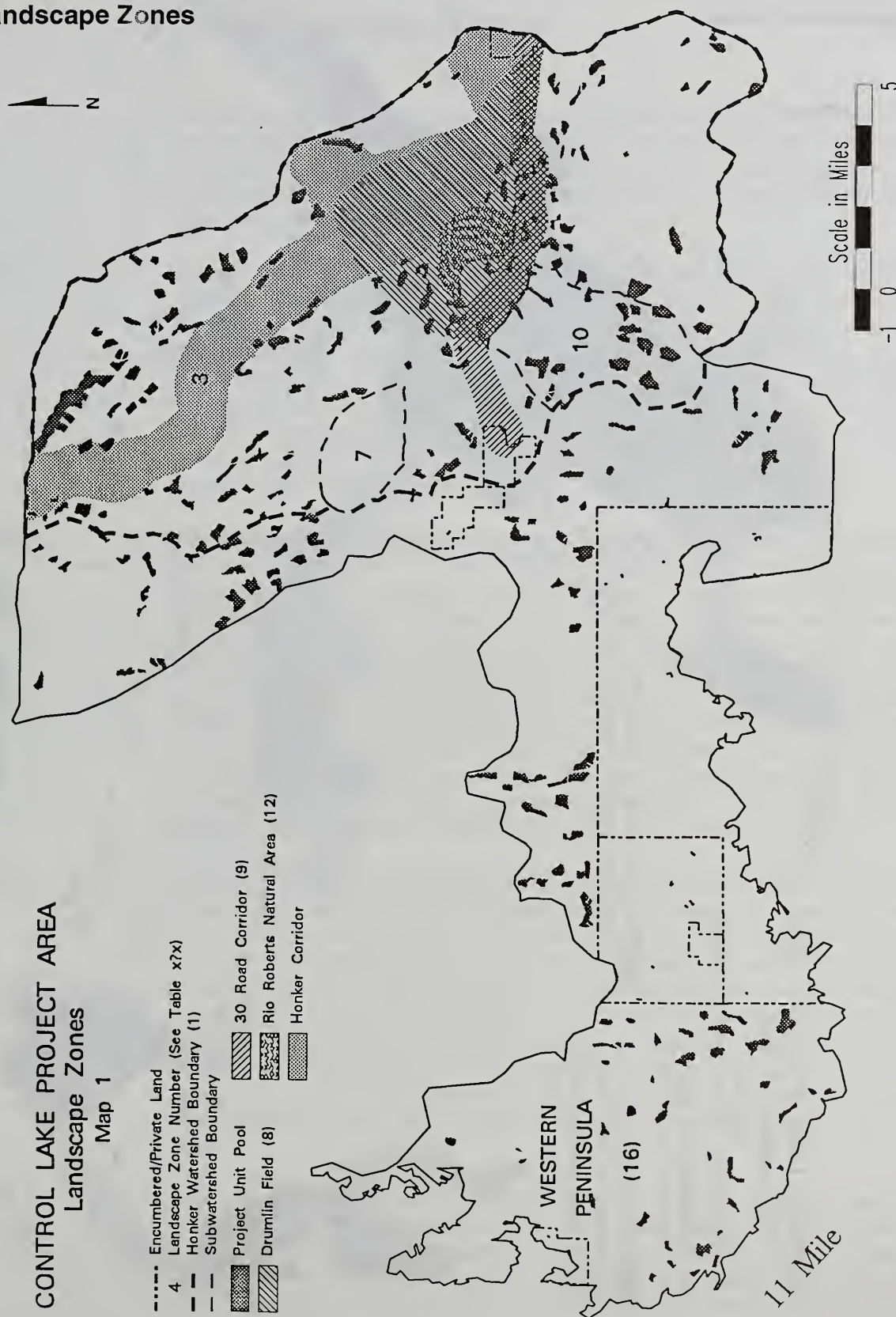
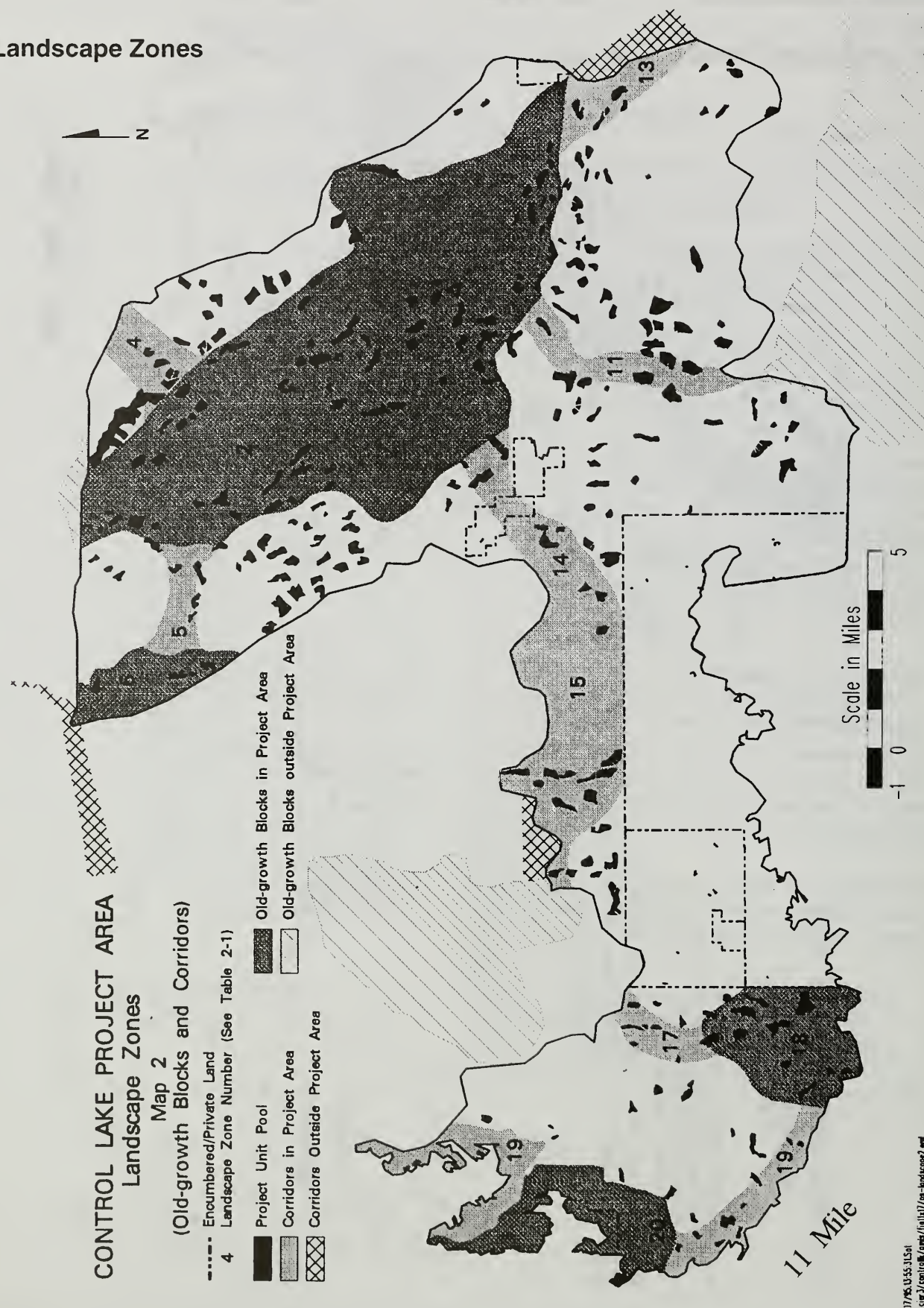


Figure S-3

Map of Landscape Zones



Alternatives Considered but Eliminated from Detailed Study

This section briefly describes alternatives that were considered but were eliminated from detailed study. Alternatives 3 and 5 are eliminated from detailed study and receive no further discussion. Alternatives 4, 6, and 10 are also eliminated from detailed study; however, because of the level of interest exhibited in them during the scoping process, additional information about these alternatives is presented in Appendix B.

Alternative 3

This alternative was referred to as the Proposed Action during scoping and was included on the map accompanying the scoping package. The chosen units were widely distributed across the Project Area. They were intended to draw attention to sensitive areas and demonstrate that all areas available for harvest under the Forest Plan were under consideration in order to solicit scoping comments. This alternative resulted in 137 harvest units providing 173 MMBF of net sawlog plus utility volume. This volume included approximately 7 MMBF from road right-of-way (ROW) clearing. This alternative was not considered in detail because the choice and distribution of units did not form logical groups for harvest and did not respond to specific issues developed during scoping.

Alternative 4

The framework for Alternative 4 emphasizes timber economics and conventional cable yarding methods. Criteria include 1 MMBF of timber volume per mile of road and no helicopter units except when they are immediately adjacent to the road system. Units with a large component of Alaska yellowcedar were included. It emphasizes a positive net economic return for the proposed harvest units by attempting to minimize logging and road construction costs. This alternative resulted in 105 harvest units on 4,555 acres providing 129 MMBF of net sawlog plus utility volume. This volume included approximately 5 MMBF from road right-of-way (ROW) clearing. It required 96 miles of road to access the harvest units. This alternative was not considered in detail because it would reduce the economic viability of future entries. By harvesting only the highest volume units in this entry, subsequent entries would be less economically viable. In addition, the volume of this alternative was considerably lower than the stated purpose and need. More information on this alternative is presented in Appendix B.

Alternative 5

This alternative uses the landscape zones as a basis for alternative design. It maintains the value and function of the zones of highest concern or sensitivity. No harvest is scheduled in Honker Divide "ridge-to-ridge," north of Forest Road 30, within the Rio Roberts Watershed, and the Western Peninsula (Eleven Mile Area). All other areas would be entered at the Forest Plan implementation level. This alternative resulted in 62 harvest units on 2,281 acres providing 68 MMBF of net sawlog plus utility volume. This volume included approximately 2 MMBF from road right-of-way (ROW) clearing. It required 59 miles of road to access the harvest units. This alternative was not considered in detail because it did not come close enough to meeting the stated purpose and need of 187 MMBF. This alternative is not considered in Appendix B because it is similar to Alternatives 6 and 10, which respond to similar issues.

Alternative 6

Like Alternative 5, this alternative uses the landscape zones as a basis for design. Harvest is scheduled to maintain the function of all landscape zones throughout a harvest rotation. It schedules timber harvest in all landscape zones except old growth blocks. Regeneration harvests were scheduled to evenly meter out removal of remaining suitable old growth over time. Different zones were assigned different rates. Harvest rates for this entry were set at 15 percent for timber production, 10.7 percent for modified landscape, 8.8 percent for scenic viewshed, and 7.5 percent for corridors. This alternative resulted in 99 harvest units on 4,021

Summary

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acres providing 106 MMBF of net sawlog plus utility volume. This volume included approximately 4 MMBF from road right-of-way (ROW) clearing. It required 93 miles of road to access the harvest units. This alternative was not considered in detail because it did not meet the stated purpose and need of 187 MMBF. However, more information on this alternative is presented in Appendix B.

Alternative 10

This alternative is similar to Alternative 5 except that it does not schedule harvest in the Logjam Creek area and uses the harvest scheduling process described in Alternative 6 for areas to be entered. The alternative attempts to emphasize community-based, value-added products by choosing units that could be most readily harvested by independent and small operators. Units in this alternative minimize road construction, are smaller, and use conventional logging systems and provide volume only for independent operators. This alternative was independently developed by a group called the Control Lake Citizen's Coalition, consisting of environmental organization representatives, independent timber contractors, and residents of Prince of Wales Island. This alternative resulted in 38 harvest units on 1,281 acres providing 38 MMBF of net sawlog plus utility volume. This volume included approximately 2 MMBF from road right-of-way (ROW) clearing. It required 24 miles of road to access the harvest units. This alternative was not considered in detail because it did not meet the stated purpose and need of 187 MMBF. However, more information on this alternative is presented in Appendix B.

Alternatives Considered in Detail

Five alternatives are considered in detail. Alternative 1 would not implement any action alternatives; the Control Lake Project Area would remain subject to natural changes only. This alternative represents the existing condition with which all other alternatives are compared. Alternatives 2, 7, 8, and 9 represent different means of satisfying the purpose and need by harvesting about 187 MMBF of timber while responding with different emphasis to the various issues.

Foldout color maps of all alternatives considered in detail are provided at the end of Chapter 2 of the EIS (or with this Summary). Similar maps are also presented for Alternatives 4, 6, and 10 in Appendix B. Additionally, a large-scale map of the Project Area with all units and roads is included with this EIS. Large-scale maps of these alternatives are also available in the Project Planning Record.

Alternative 1 Framework

Alternative 1, also called the No Action Alternative, would result in no timber (No Action) harvest or road construction in the Control Lake Project Area that is additional to the timber harvest already cleared by the 1989-94 EIS. Under this alternative, replacement timber volume would probably not be available from somewhere else within the Ketchikan Area at this time. This alternative serves as a baseline against which to measure the effects of the action alternatives.

Resource Outputs

There are no new timber harvest outputs associated with this alternative. Timber harvest and road construction would halt in late 1995 following full implementation of the 1989-94 EIS.

Economic Outputs

Because Alternative 1 would result in no new timber harvest or road construction beyond that which is already approved, there would be no timber-related economic outputs. Additional receipts to the State of Alaska would be foregone and no new timber jobs would be created.



Alternative 2 Framework

Under this alternative, timber volume provided would be limited only by the application of the Forest Plan Management Prescriptions, Standards and Guidelines, and Best Management Practices. It represents the level of harvest that could be allowed at this time under full Forest Plan Implementation. The 250 units in this alternative represent the total Project unit pool that remained after field investigation.

Resource Outputs

Implementation of Alternative 2 would result in the harvest of 9,409 acres in 250 harvest units producing approximately 233 MMBF of net sawlog and utility volume. This volume includes approximately 12 MMBF from road right-of-way (ROW) clearing. Average unit size would be about 37.6 acres and 6 units would exceed 100 acres. Of this harvest, 66 units totalling 3,338 acres are planned for partial cut; the remainder are planned for clearcut harvest. The retention of reserve trees is planned to varying degrees in all units proposed for clearcutting. To implement this harvest, approximately 218 miles of new road would be constructed and 8 miles of existing road would require reconstruction.

No new LTF's would be needed. Timber harvested would be hauled to existing LTF's at Winter Harbor, Naukati, Coffman Cove, and Thorne Bay. The existing logging facilities at Thorne Bay, Coffman Cove, and Naukati are all that would be required to support the harvest of approximately 233 MMBF.

Economic Outputs

Preliminary economic analysis indicates that Alternative 2 would produce an overall net stumpage value in the range of \$83.69 per thousand board feet (MBF) at early 1995 timber values. The present net value (PNV) of Alternative 2 was estimated to be \$4.9 million. Payments to the State of Alaska resulting from Alternative 2 were estimated at \$14.5 million. Average annual direct jobs created were estimated at 455 over 4 years.

Summary

Alternative 7 Framework

This alternative seeks to meet the purpose and need of 187 MMBF while responding to scoping concerns related to entry into the Western Peninsula and upper Rio Roberts Watershed. The alternative allows no entry into these two areas of concern and then uses the remaining units to meet the purpose and need volume.

Resource Outputs

If Alternative 7 were implemented, it would result in the harvest of 7,399 acres in 197 harvest units producing approximately 180 MMBF of net sawlog and utility volume. This volume includes approximately 9 MMBF from road ROW clearing. Average unit size would be about 37.6 acres and 3 units would exceed 100 acres. Of this harvest, 52 units totaling 2,651 acres are planned for partial cut; the remainder are planned for clearcut harvest. The retention of reserve trees is planned to varying degrees for all units proposed for clearcutting. To implement this harvest, approximately 173 miles of new road would be constructed and 8 miles of existing road would require reconstruction.

No new LTF's would be needed. Timber harvested would be hauled to existing LTF's at Winter Harbor, Naukati, Coffman Cove, and Thorne Bay. The existing logging facilities at Thorne Bay, Coffman Cove, and Naukati are all that would be required to support the harvest of approximately 180 MMBF.

Economic Outputs

Preliminary economic analysis indicates that Alternative 7 would produce an overall net stumpage value of \$82.41 per MBF at early 1995 timber values. The PNV of Alternative 7 was estimated to be \$3.3 million. Payments to the State of Alaska resulting from Alternative 7, were estimated at \$11.3 million. Average annual direct jobs created were estimated at 349 over 4 years.

Alternative 8 Framework

This alternative seeks to provide 187 MMBF while responding to scoping concerns related to entry into the Honker Divide area. The alternative meets the purpose and need volume by harvesting all potential units in the Project Unit Pool except for a core group in the Honker Divide area.

Resource Outputs

Implementation of Alternative 8 would result in the harvest of 7,107 acres in 186 harvest units producing approximately 184 MMBF of net sawlog and utility volume. This volume includes approximately 9 MMBF from road ROW clearing. Average unit size would be about 38.2 acres and 5 units would exceed 100 acres. Of this harvest, 39 units totaling 2,065 acres are planned for partial cut; the remainder are planned for clearcut harvest. The retention of reserve trees is planned to varying degrees for all units proposed for clearcutting. To implement this harvest, approximately 169 miles of new road would be constructed and 8 miles of existing road would require reconstruction.

No new LTF's would be needed. Timber harvested would be hauled to existing LTF's at Winter Harbor, Naukati, Coffman Cove, and Thorne Bay. The existing logging facilities at Thorne Bay, Coffman Cove, and Naukati is all that would be required to support the harvest of approximately 184 MMBF.

Economic Outputs

Preliminary economic analysis indicates that Alternative 8 would produce an overall net stumpage value of \$95.16 per MBF at early 1995 timber values. The PNV of Alternative 8 was estimated to be \$6.5 million. Payments to the State of Alaska resulting from Alternative 8 were estimated at \$11.8 million. Average annual direct jobs created were estimated at 353 over 4 years.

Alternative 9 Framework

This alternative minimizes harvest in the Honker Block, avoids harvest in the Rio Roberts corridor, minimizes harvest in the Western Peninsula, and allows harvest at the Forest Plan implementation level in most other zones.

Resource Outputs

If Alternative 9 were implemented, it would result in the harvest of 5,123 acres in 135 harvest units producing approximately 130 MMBF of net sawlog and utility volume. This volume includes approximately 6 MMBF from road ROW clearing. Average unit size would be about 38 acres and 3 units would exceed 100 acres. Of this harvest, 23 units totaling 1,368 acres are planned for partial cut; the remainder are planned for clearcut harvest. The retention of reserve trees is planned to varying degrees for all units proposed for clearcutting. To implement this harvest, approximately 115 miles of new road would be constructed and 8 miles of existing road would require reconstruction.

No new LTF's would be needed. Timber harvested would be hauled to existing LTF's at Winter Harbor, Naukati, Coffman Cove, and Thorne Bay. The existing logging facilities at Thorne Bay, Coffman Cove, and Naukati is all that would be required to support the harvest of approximately 130 MMBF.

Economic Outputs

Preliminary economic analysis indicates that Alternative 9 would produce an overall net stumpage value of \$57.20 per MBF at early 1995 timber values. The PNV of Alternative 9 was estimated to be -\$0.5 million. Payments to the State of Alaska resulting from Alternative 9 were estimated at \$8.1 million. Average annual direct jobs created were estimated at 257 over 4 years.

Comparison and Evaluation of Alternatives

This section presents the environmental consequences of the alternatives in a comparative format. First, the alternatives are compared and evaluated relative to the significant issues. Then at the end of this section, three tables are presented. In the first one, a summary of the physical and economic outputs of the alternatives are presented in Table S-2. Next, the environmental consequences of the alternatives are summarized in Table S-3. All numbers presented in these two tables are either absolute or relative to Alternative 1 as indicated. Finally, in Table S-4 the alternatives are compared and evaluated relative to the landscape zones identified in Table S-1 and Figure S-3. For more detailed descriptions of the affected environment and the environmental consequences of the alternatives, refer to Chapters 3 and 4, of the EIS, respectively.

Issue 1—Honker Divide

Under Alternatives 2 and 7, changes to the unroaded character of the Honker Divide would be the highest with 2,390 acres of timber harvest and 56 miles of new road construction. Under Alternative 8, changes to the unroaded character of the Honker Divide would be high with 1,205 acres of timber harvest and 30 miles of new road construction. Changes to the unroaded

Summary

character of the Honker Divide under Alternative 9 would be moderate with 345 acres of timber harvest and 7.5 miles of new road. Under all action alternatives roaded access and related recreation and subsistence use would increase. Roads providing access to the Thorne River and Hatchery Creek System would be closest to the system with Alternatives 2 and 7, similar but further away for Alternative 8, and furthest away for Alternative 9.

For all alternatives, there would be some potential for recreationists using the Thorne River/Honker Divide Canoe route to hear logging activities. This potential is highest in Alternatives 2 and 7, and lowest in Alternatives 8 and 9.

The high wildlife habitat value of this area associated with the large unfragmented block of old growth would be substantially reduced under Alternatives 2 and 7. This value would be moderately reduced under Alternative 8 and slightly reduced under Alternative 9.

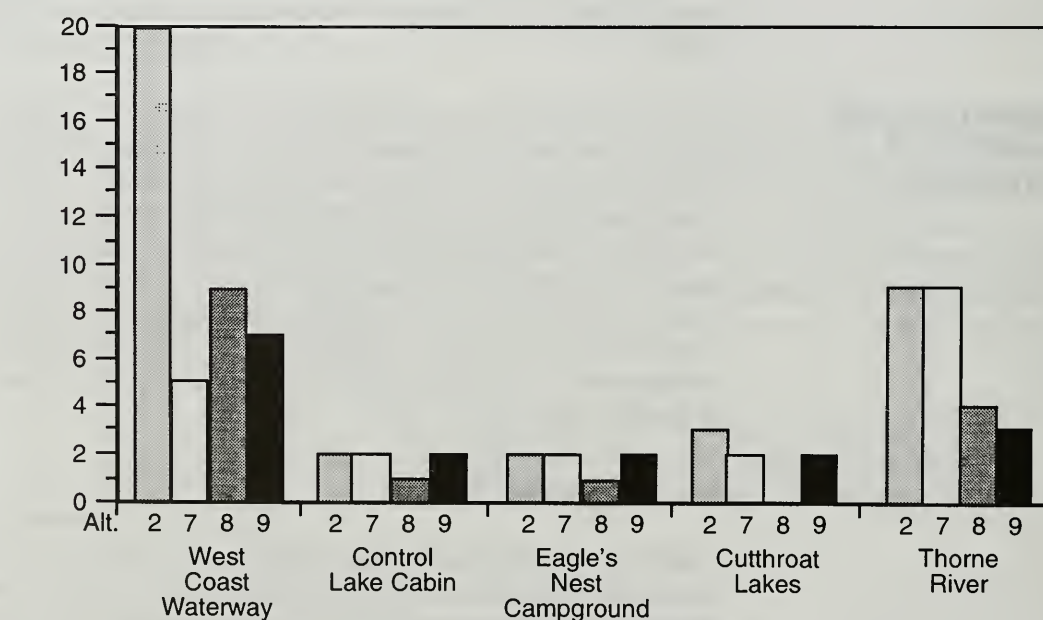
Issue 2—Recreation and Visual Quality

During the Project Area visual assessment, six priority travel routes or use areas were identified. Among these, five are considered important for comparison because of their visual sensitivity and the presence of harvest units within them. The degree of change in the visual quality from these priority travel routes and use areas is considered in relationship to the number of harvest units potentially affecting them. Figure S-4 shows the number of units seen from priority travel routes and use areas.

The West Coast Waterway is influenced by 20 units in Alternative 2, five units in Alternative 7, nine units in Alternative 8, and nine units in Alternative 9. The Control Lake Cabin is influenced by two units in Alternative 2, two units in Alternative 7, one unit in Alternative 8, and two units in Alternative 9. Eagle's Nest Campground (Balls Lake) is influenced by two units in Alternative 2, two units in Alternative 7, one unit in Alternative 8, and two units in

Figure S-4

Number of Units Seen from Priority Travel Routes and Use Areas



Alternative 9. The Cutthroat Lakes area is influenced by three units in Alternatives 2 and 8, two units in Alternative 7, and zero units in Alternative 9. The Thorne River/Honker Divide Canoe Route is influenced by nine units in Alternatives 2 and 7, six units in Alternative 8, and four units in Alternative 9. The visual quality effects associated with all of these priority travel routes and use areas is low to moderate and falls within standard and guidelines. Changes in the visual quality along the 30 Road Corridor would be highest with Alternatives 2 and 8 and lowest with Alternatives 7 and 9.

The alternatives would have minimal effects on existing and potential recreation sites. All action alternatives would result in a reduction in the area of unroaded ROS settings (Table S-4). For Alternative 2, timber harvest and road construction would change approximately 82,025 acres of unroaded ROS settings to roaded settings. For Alternative 7, timber harvest and road construction would result in a change of approximately 54,246 acres of unroaded to roaded ROS settings. For Alternative 8, timber harvest and road construction would result in a change of approximately 60,034 acres of unroaded to roaded ROS settings. For Alternative 9, timber harvest and road construction would result in a change of approximately 39,801 acres from unroaded to roaded ROS settings.

Issue 3—Subsistence

Deer hunting is the major aspect of subsistence use that is affected by timber harvest. Based on the wildlife analysis, Sitka black-tailed deer habitat capability in the Project Area would be reduced from 4 to 6 percent by the action alternatives (Table S-3). Alternative 2 would have the greatest effect, and Alternative 9 would have the least effect of the action alternatives. Alternative 1 would result in no change. In all cases, the habitat capability is below that needed to support current total deer harvest levels in the Project Area. Under all alternatives, including Alternative 1, there is a significant possibility of significant restriction of subsistence use of Sitka black-tailed deer by the residents of most local communities through the foreseeable future.

Black bear and marten habitat capabilities would be below needed populations in some areas and close to needed populations for the Project Area as a whole under all alternatives including Alternative 1.

Issue 4—Wildlife Habitat and Biodiversity

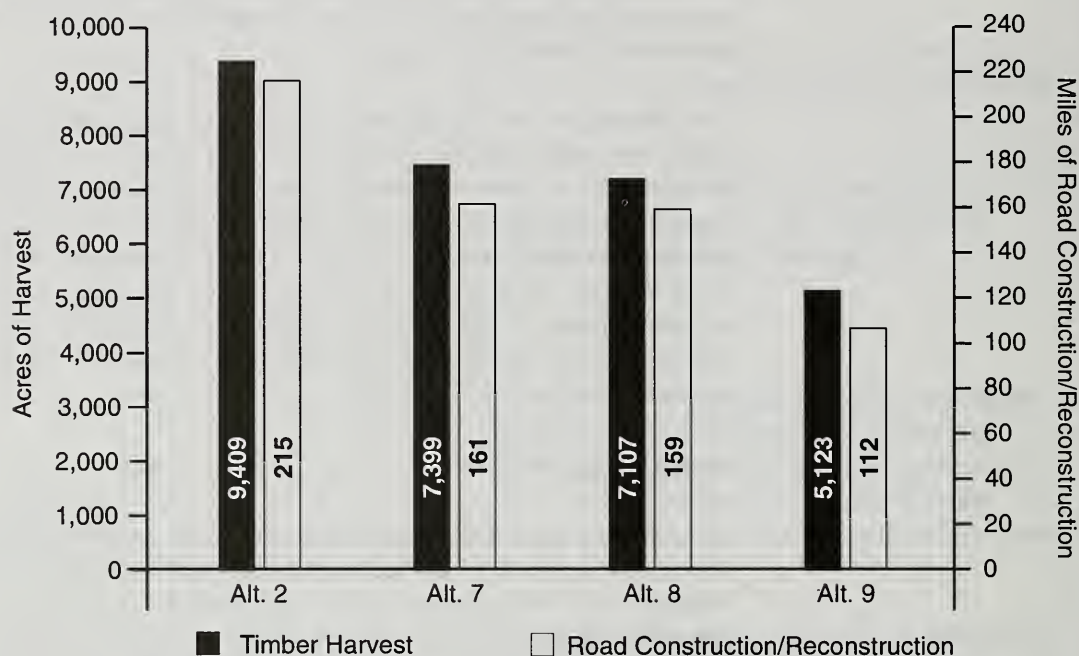
The major effects on wildlife habitats in all action alternatives are the reduction of old-growth forest habitat (Volume Classes 4 to 7) and the increased access provided by the construction or reconstruction of roads into presently unroaded areas. Figure S-5 shows the old-growth harvest and road construction and reconstruction under each alternative.

Alternative 2 would result in the greatest effects on old-growth habitat and effects due to increased access, while Alternative 9 would result in the least among the action alternatives. All alternatives would result in impacts consistent with the implementation of TLMP (1979a, as amended) and Alternative P of the TLMP Draft Revision (1991a).

For all of the action alternatives the TTRA proportionality (i.e., the acreage-based proportion of volume classes 6 and 7 remaining in each Management Area) for MA K08 would be above the TTRA baseline and would also increase. For MA K14, the action alternatives would be 0.38 to 0.62 percent below the TTRA baseline, but proportionality would improve over existing conditions (0.75 percent below the baseline). For MA K15, Alternatives 2 and 8 would be 0.75 and 0.31 percent below the TTRA baseline, respectively, and proportionality would decrease relative to existing conditions (0.16 percent above the baseline). Alternatives 7

Figure S-5

Timber Harvest and Road Construction/Reconstruction



and 9 would be 0.41 and 0.32 percent above the baseline, and proportionality would increase relative to existing conditions. Future entries would require the harvest of a greater percentage of volume classes 4 and 5 in order to increase proportionalities to or beyond the baseline for those MA's and alternatives below the baseline.

All action alternatives would reduce the frequency of large, unfragmented old-growth patches (Table S-4). Under the action alternatives the total area of the one remaining forest patch in the Project Area greater than 10,000 acres would range from 25,505 acres (Alternatives 2 and 7) to 27,784 acres (Alternative 9). These are reductions from the existing condition of 29,739 acres of forest patches greater than 10,000 acres. Overall, Alternative 2 results in the highest fragmentation of large forest patches and Alternative 9 results in the lowest fragmentation. This pattern is for both total and interior forest patches.

Issue 5—Fish Habitat and Water Quality

No measurable effects on fish habitat or water quality are expected under any of the alternatives. All alternatives meet the requirement and intent of the Clean Water Act. Implementation of identified fish habitat enhancement opportunities could increase habitat for fish production. Implementation of TTRA-required stream buffers, additional-width buffers per the Proposed Revised Forest Plan Standards and Guidelines, and BMP's and other relative mitigation measures would effectively mitigate fish habitat and water quality impacts. These conclusions are supported by the fish habitat capability models for coho and pink salmon and Dolly Varden char.

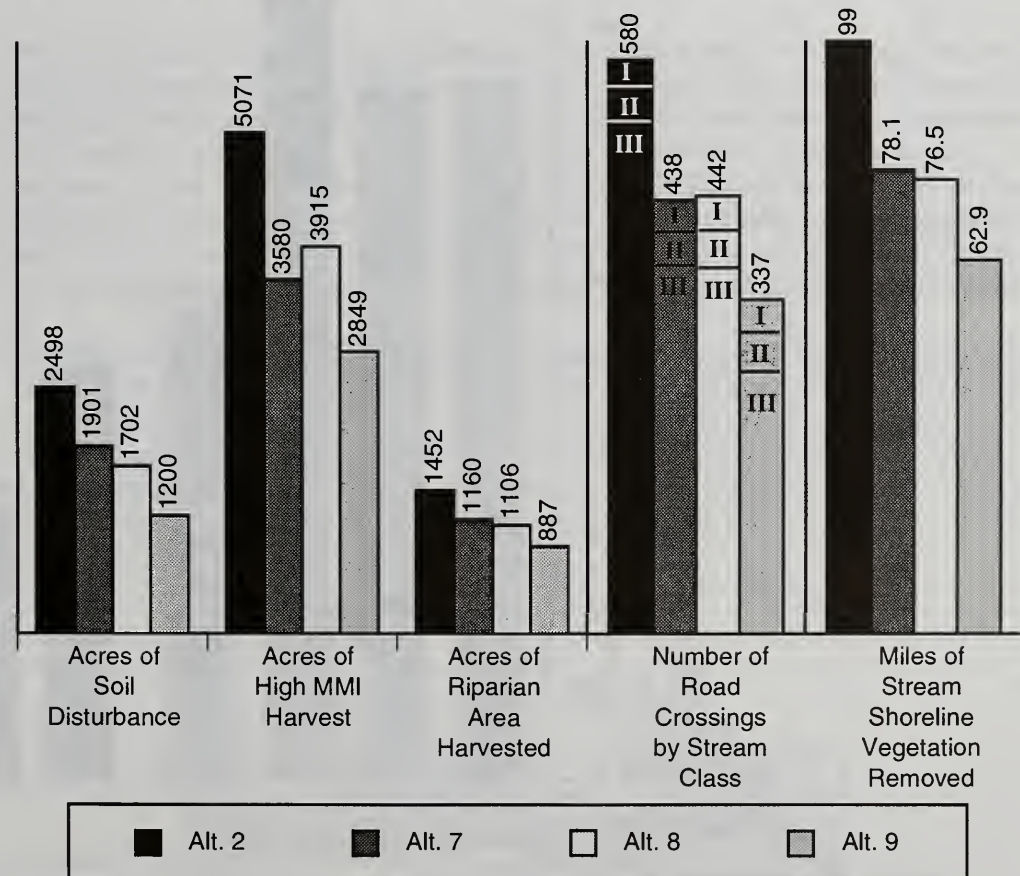
Most major watersheds in the Project Area have experienced prior road construction and timber harvest. Re-entering these drainages may generate a greater potential risk of impacts on water

quality, with the risk expected to be greater in those watersheds with the higher cumulative harvest percentages. The standards and guidelines of the Proposed Revised Forest Plan limit the amount of timber harvest within a given watershed to 35 percent of the total land base within a 15-year period. The standards and guidelines also limit the amount of timber harvest in riparian management areas associated with unbuffered Class III streams to 25 percent of the total riparian area within a watershed within a 20-year period. None of the alternatives would permit these thresholds to be exceeded in any of the Project Area's major watersheds.

Additional measures of potential risk to water quality and fish habitat are: (1) an index of the amount of soil disturbance, which is related to the area harvested, the logging systems used, and the area disturbed during road construction; (2) the amount of harvest on slopes with a high mass movement index; (3) the amount of riparian area harvested outside of no-cut buffers (primarily around lakes and along Class III streams); (4) the number of Class I, II, and III stream road crossings; and (5) the length of Class III stream shoreline vegetation removal due to timber harvest. These measures are quantified in Table S-3 and displayed graphically in Figure S-6. Review of Table S-3 indicates that Alternatives 7 and 9 rank lowest and Alternatives 2 and 8 rank highest in these measures of potential risk.

Figure S-6

Risk to Water Quality and Fish Habitat, by Alternative



Summary

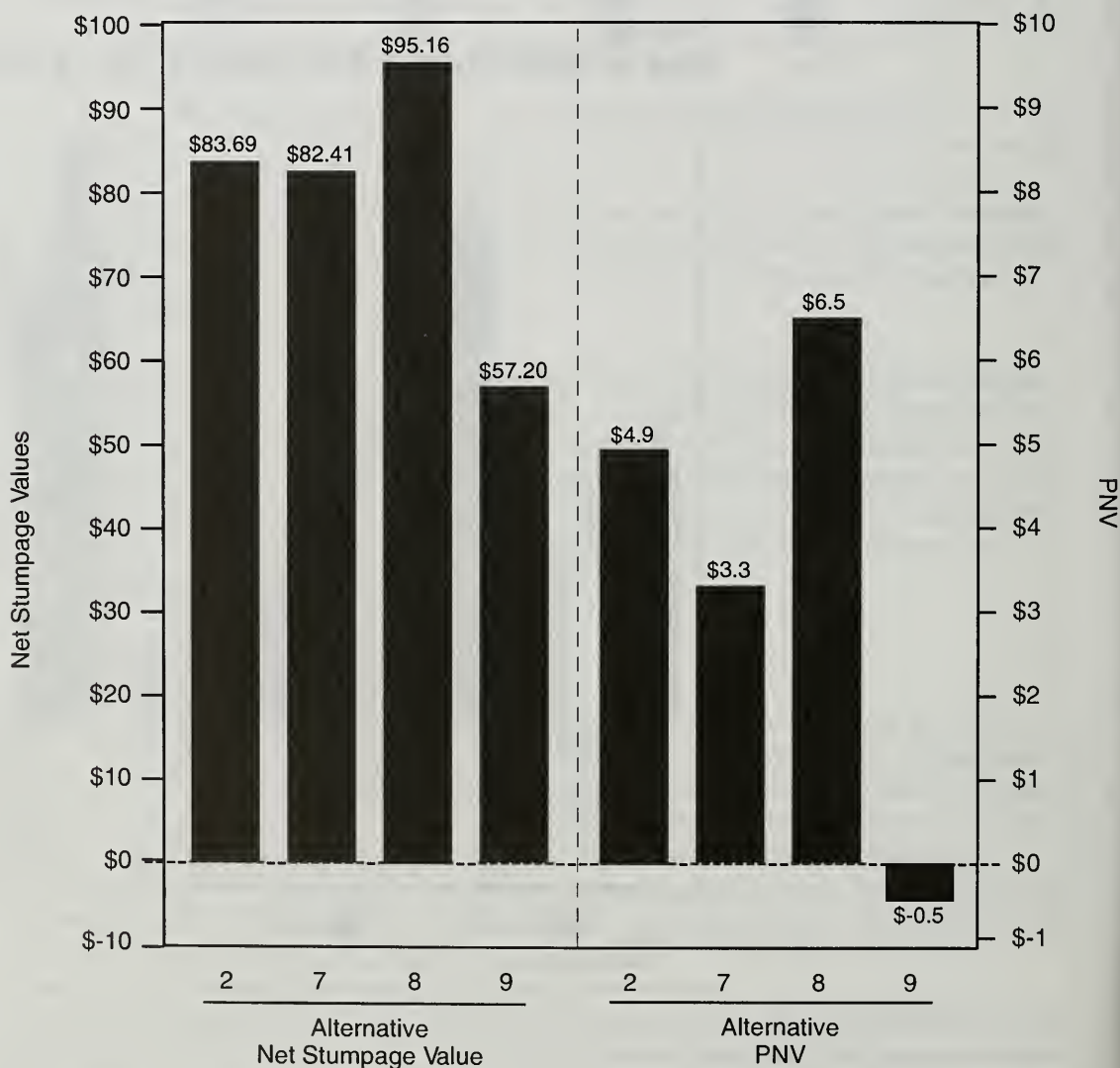
Potential effects on marine habitats and organisms would be less under Alternatives 9 and 7 because they produce the lowest timber volumes that would be transported to existing LTF's.

Issue 6—Timber Economics and Supply

Preliminary economic analysis indicates that overall net stumpage values would be positive for all action alternatives using current timber prices (Table S-2). Figure S-7 compares the stumpage values and PNV's for the action alternatives. Alternative 9 has the lowest stumpage value, and Alternative 8 has the highest (Table S-2). PNV's are also negative for all action alternatives. Alternative 8 has the highest PNV followed by Alternatives 2, 7, and 9 in that order. Alternative 2 has the highest payment to the State of Alaska followed by Alternatives 8, 7, and 9. Alternative 2 creates the highest number of jobs followed by Alternatives 8, 7, and 9.

Figure S-7

Net Stumpage Values (\$/MBF) and PNV's (\$ million)



Timber supply analysis indicates the distribution between geographic areas on Prince of Wales Island is expected to change from patterns of past harvest. Future harvest will shift away from the northern and north-central road systems and towards the south-central and isolated areas. This is expected to decrease the timber harvest levels available for communities in the northern half of Prince of Wales Island that are dependent on harvest from National Forest System lands. Likewise, communities in the southern half and isolated areas of Prince of Wales Island could expect an increase in timber harvest levels in the future. Overall harvest levels may decrease over time due to higher levels of falldown or revised land use allocations.

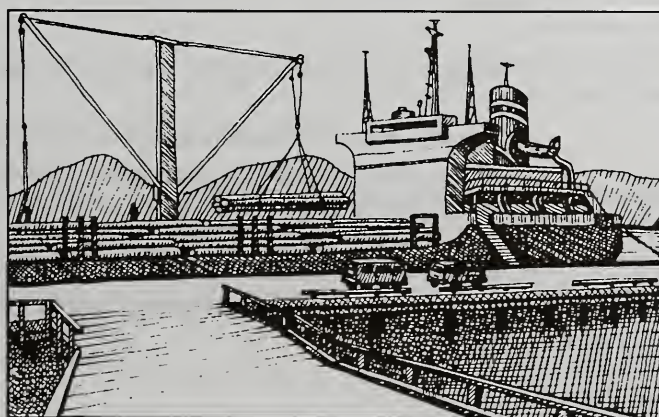
Issue 7—Karst and Cave Resources

Within the total unit pool of harvest units, three units include low-to-moderate vulnerability karst; there are no units that are rated as high vulnerability. The potential extent of affected karst within the harvest units is about 99 acres for Alternative 2, 72 acres for Alternative 7, 45 acres for Alternative 8, and 82 acres for Alternative 9. The miles of road that potentially affect karst areas range from about 2.2 mile for Alternatives 2, 7, and 8 to 0.8 miles for Alternative 9. Specific mitigation measures to minimize the potential for adverse effects have been prescribed for all three units.

Mitigation Measures

The proposed Revised Forest Plan (TLMP 1991a) presents management prescriptions for each land use designation and Forest-wide standards and guidelines which are to be followed in the development of mitigation measures. Likewise, the plan provides forest management goals and objectives but does not contain project decisions. The analysis supporting this EIS discloses possible adverse impacts that are specific to the locality and to the actions proposed. Therefore, measures were formulated to mitigate these impacts guided by forest management goals and objectives, under the overall direction given by the proposed land use designation management prescriptions, and following the proposed Forest-wide standards and guidelines.

Most of these measures are harvest unit- or road-specific, but many of these measures result in the complete elimination or deferral of harvest from geographic areas. These broad measures are identified and discussed first, followed by a summary of the site-specific measures. Mitigation measures are described in more detail in the appropriate sections of Chapter 4. Unit-specific mitigation measures are summarized by harvest unit in Appendix C. These are described in greater detail on the unit design cards in Appendix F.



Summary

Site-Specific Mitigation Measures

A wide variety of site-specific mitigation measures designed primarily to avoid or minimize adverse impacts, have been evaluated and incorporated into harvest unit and road design, preliminary layout, and would be incorporated into final layout and timber sale implementation. These measures are summarized in Table 2-5 in the EIS along with the number of harvest units affected for each alternative. A specific listing of each unit affected by each measure is provided in Appendix C. A description of the mitigation measures for each unit and road segment is provided in the unit and road design cards in Appendices F and G.

In addition to the site-specific measures listed in these tables, a variety of other site-specific measures would apply to all harvest and construction activities and would be incorporated into timber harvest unit and road design. These measures include all appropriate BMP's not specifically identified in the table. Direction for use of BMP's on National Forest System lands in Alaska is included in Chapter 10 of the Region 10 Soil and Water Conservation Handbook (FSH 2509.22) (USDA Forest Service 1991b). The handbook describes the application, monitoring, evaluation, and refinement of these BMP's. Appendix C of the Proposed Revised Forest Plan (TLMP 1991a) provides a listing and brief summary of the BMP's used in the Alaska Region. In addition, many other Forest Plan standards and guidelines apply, in addition to those cited in the site-specific measures identified. These standards and guidelines are incorporated by reference (TLMP 1991a).

Monitoring

Monitoring activities can be divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific monitoring. These broad types are discussed in the following sections.

Forest Plan

The National Forest Management Act requires that National Forests monitor and evaluate their forest plans (36 CFR 219.11). The significance of this requirement is emphasized by the recent development of a National Monitoring and Evaluation Strategy (USDA Forest Service 1993a). The Strategy is designed to focus agency attention and resources on evaluating implementation of forest plans to provide the Forest Service with information necessary to ensure responsive and efficient management of National Forests. Embodied in the National Monitoring and Evaluation Strategy are three principles: (1) evaluation of results will be readily available to the public, agencies, and other groups; (2) monitoring and evaluation will focus on ecosystems and emphasize interrelationships among biotic and abiotic components; and (3) the strategy will be flexible to meet local needs while encompassing forest, regional, and national requirements.

Three levels of monitoring are incorporated into Forest Plan monitoring and evaluation:

- **Implementation Monitoring** is used to determine if goals, objectives, standards and guidelines, and management prescriptions are implemented as detailed in the Forest Plan and project specifications.
- **Effectiveness Monitoring** is used to determine if standards and guidelines and management prescriptions as designed and implemented are effective in meeting Forest Plan goals and objectives.

- **Validation Monitoring** is used to determine whether the data, assumptions, and coefficients used in the development of the Plan are correct.

Most monitoring elements involve the mitigation measures described previously. The mitigation measures are part of a process that includes these three types of monitoring to determine if the measure was implemented and is effective or needs revision. The feedback provided by monitoring results can be used to develop improved methods or additional treatments to ensure that the mitigation will be effective in the future.

An annual monitoring report is being prepared by each Administrative Area of the Tongass and incorporated into one Tongass report at the end of each year beginning with Fiscal Year 1993.

The Ketchikan Area submitted its 1993 Plan to the Regional Forester in December 1993. In early 1994, the Ketchikan Area adopted a Monitoring Strategy to more specifically guide area monitoring efforts. Results of this more intensive coordinated effort will be included in the 1994 Fiscal Year Monitoring and Evaluation Report. This report addresses all monitoring questions contained in the applicable Forest Plan, references all monitoring being conducted on the area/forest, assesses progress towards achieving the goals and objectives described in the Forest Plan, and either certifies that the Forest Plan is sufficient to guide management of the forest over the next year or proposes needed changes and an approach for dealing with those changes.

Forest Plan monitoring is conducted over the entire forest on a sample basis. Samples may or may not be taken within the Control Lake Project Area; however, monitoring results are designed to answer questions regarding the implementation and effectiveness of mitigation within the Project Area. A total of 38 implementation, effectiveness, and validation monitoring items are identified in the forest-wide monitoring plan described in the TLMP Draft Revision (1991a).

Routine Implementation Monitoring

Routine implementation monitoring assesses whether the project was implemented as designed and whether or not it complies with the Forest Plan. Planning for routine implementation monitoring began with the preliminary design of harvest units and roads. Specialists used on-the-ground inventories, computer inventories, and aerial photographs to prepare documents called unit cards for each harvest unit in each of the alternatives. Cards were also prepared for each segment of road. Resource specialists wrote their concerns on the cards and then described how the concerns could be addressed in the design of each unit and road segment. Integrated silvicultural prescriptions were prepared to describe the detailed interdisciplinary prescription for each unit. Resource concerns, mitigation measures, and prescriptions will be refined further during final layout when specialists will have one more opportunity to revise the unit and road card recommendations and integrated silvicultural prescriptions. The unit and road cards and prescriptions will be the basis for determining whether recommendations were implemented for various aspects of the Control Lake Project.

Routine implementation monitoring is part of the administration of a timber sale contract. The sale administrators and road inspectors ensure that the recommendations contained on the unit and road cards and the prescriptions are incorporated into contract documents and then monitor performance relative to contract requirements. All units and roads in the timber sale are included in the monitoring.

Project-specific Monitoring

In addition to the Forest Plan monitoring and routine implementation monitoring that will be conducted throughout the Tongass National Forest, including the Control Lake Project Area, two project-specific monitoring activities are identified. The following provides a description for each project-specific monitoring activity.

- **Ecosystem Management Objective:** To determine if the four types of clearcuts, with reserve trees, and the five types of partial cuts, prescribed in this project for ecosystem management, have been implemented, provide structural diversity after harvesting, and verify the extent of reserve tree blowdown.
- **Desired Result:** All four types of clearcuts and five types of partial cuts have been implemented and each type provides structural diversity, to varying degrees, maintains snag densities and structure in the second-growth stand, and reduces the visual contrast between the clearcut and adjacent old growth, for at least 10 years post-harvest.
- **Measurement:** Compare unit cards and silvicultural prescriptions with observations on the ground on 20 percent of the units for each harvest type. Prepare narrative description and map of reserve tree size, density, and distribution and include an assessment of the extent of blowdown and the VQO achieved. Examine the effect of site factors on the degree of blowdown.
- **Evaluation:** Modify future unit prescriptions based on feedback obtained.
- **Responsible Staff:** Thorne Bay Ranger District wildlife staff, silviculturist, and landscape architect
- **Record of Results:** Prepare a brief report of results, 1, 5, and 10 years after harvest. Annual Cost: \$9,000.
- **Personnel Needs:** 0.3 FTE

AVAILABILITY OF PROJECT FILES

The Planning Record is a comprehensive project file documenting the process of developing this EIS. A library of important supporting documents and maps from the Planning Record, as well as a copy of the Planning Record index, will be maintained in the Forest Supervisor's office in Ketchikan, Alaska. The complete Planning Record is in the Bellevue, Washington office of the contractor (Foster Wheeler Environmental Corporation) that conducted the environmental analysis in consultation with the Forest Service. Many items can be found at both Foster Wheeler Environmental Corporation and the Forest Supervisor's office. The reader also may want to refer to the Tongass Land Management Plan (TLMP 1979a, as amended), the TLMP Draft Revision (TLMP 1991a), the Tongass Timber Reform Act, the Resource Planning Act, the Alaska Regional Guide and its Final EIS, ANILCA, or ANCSA. These are available at public libraries around the region as well as all Forest Service offices.

Table S-2

Physical and Economic Outputs of Alternatives

Item	Units	Alternative				
		1	2	7	8	9
Timber						
Harvest Units	Number	0	250	197	186	135
Harvest Units	Acres	0	9,409	7,399	7,107	5,123
Avg. Unit Size	Acres	0	37.6	37.6	38.2	38
Avg. Volume per acre (in units)	MBF	0	23.5	22.9	24.7	24.4
Units over 100 acres	Number	0	6	3	5	3
Total Volume (including ROW)	MMBF	0	233	180	184	130
Silvicultural System						
Clearcut						
Type A	Acres	0	3,609	2,730	3,376	2,630
Type B	Acres	0	1,983	1,599	1,358	894
Type C	Acres	0	479	419	308	231
Overstory Removal	Acres	0	607	298	310	93
Seed Tree	Acres	0	499	322	186	174
Shelterwood (Type G Harvest)	Acres	0	629	555	554	282
Shelterwood (Type H Harvest)	Acres	0	233	217	55	40
Uneven-aged Management	Acres	0	1,371	1,260	958	780
Logging system						
Highlead Harvest	Acres	0	944	859	836	681
Shovel Harvest	Acres	0	976	803	616	398
Running Skyline Harvest	Acres	0	3,503	2,852	2,695	1,871
Live Skyline Harvest	Acres	0	1,238	705	1,152	724
Slackline Harvest	Acres	0	1,122	882	751	594
Helicopter Harvest	Acres	0	1,625	1,297	1,056	855
Proposed Proportionality						
Area-based Method						
Management Area K08 (TTRA Baseline=21.23%)	Percent	21.47	22.04	22.04	21.80	21.68
Management Area K14 TTRA Baseline=14.88%)	Percent	14.13	14.50	14.26	14.35	14.30
Management Area K15 TTRA Baseline=21.42%)	Percent	21.58	20.67	21.83	21.11	21.74
Roads and Facilities						
Road Construction/Reconstruction (includes all specified and temporary roads)	Miles	0	215	161	159	112
Road Construction/Reconstruction	Acres	0	1,954	1,465	1,442	1,019
New Log Transfer Facilities	Number	0	0	0	0	0
Potential for New Logging Camps	Number	0	0	0	0	0
Economics						
Estimated Net Stumpage (Current Values)	\$/MBF		\$83.69	\$82.41	\$95.16	\$57.20
Present Net Value	\$ million		\$4.9	\$3.3	\$6.5	\$-0.5
Payments to State of Alaska	\$ million	0	\$14.5	\$11.3	\$11.8	\$8.1
Average Annual Direct Jobs Over 4 Years	# of jobs	0	455	349	353	257

Summary

Table S-3

Environmental Consequences of Alternatives

Item	Units	Alternative				
		1	2	7	8	9
Caves and Significant Karst Features						
Harvest Units Potentially Affecting	# of Units	0	0	0	0	0
Soils						
Area of Soil Disturbance						
Harvest Units	Acres	0	598	354	336	286
Roads and Landings	Acres	0	1,900	1,547	1,366	914
Total Area Affected by Mass Movement Index Category						
Very High MMI	Acres	0	0	0	0	0
High MMI	Acres	0	5,071	3,580	3,915	2,849
Wetlands, Floodplains, & Riparian						
Wetland Area Affected						
Harvest Units	Acres	0	4,734	4,032	3,301	2,562
Roads	Acres	0	1,186	751	861	599
Class I Stream Floodplain						
Road Crossings	Number	0	34	24	23	19
Riparian Management Area Harvested	Acres	0	1,452	1,160	1,106	887
Fish and Water Quality						
Road Crossings						
Class I Streams	Number	0	82	54	64	47
Class II Streams	Number	0	129	76	75	53
Class III Streams	Number	0	369	308	303	237
Streamside Vegetation Clearing						
Harvest Units	Miles	0	99.9	78.1	76.5	62.9
Wildlife						
Change in MIS Habitat Capability						
Sitka Black-tailed Deer	Percent	0	-6	-5	-5	-4
Black Bear	Percent	0	-6	-3	-5	-5
Marten	Percent	0	-7	-5	-5	-4
Gray Wolf	Percent	0	-6	-5	-5	-4
River Otter	Percent	0	0	0	0	0
Vancouver Canada Geese	Percent	0	-4	-3	-3	-2
Bald Eagle	Percent	0	0	0	0	0
30 Road	Percent	0	-10	-7	-8	-2
Hairy Woodpecker	Percent	0	-11	-9	-9	-6
Brown Creeper	Percent	0	-8	-5	-6	-1
Change in Deer Winter Range						
High Quality Winter Range	# of Units	0	52	27	30	21

Table S-3 (continued)

Environmental Consequences of Alternatives

Item	Units	Alternative				
		1	2	7	8	9
Biodiversity						
Unfragmented Old-growth Patches Remaining						
>10,000 acres	Acres	29,739	25,505	25,505	26,851	27,784
5,000-10,000 acres	Acres	6,598	5,948	5,948	5,948	5,948
1,000-5,000 acres	Acres	24,785	19,294	21,554	20,045	21,454
Subsistence						
Deer Habitat Capability	Number	9,718	9,390	9,460	9,463	9,521
Deer Population Needed to Support 1995 Harvest	Number	10,910	10,910	10,910	10,910	10,910
Harvest Area Used by >15% of Rural Community Households for Deer Hunting						
	Acres	0	621	471	603	370
Visual and Recreation Resources						
Priority Travel Route and Use Area						
West Coast Waterway	# of Units	0	20	5	9	9
Control Lake Cabin	# of Units	0	2	2	1	2
Eagle's Nest Campground	# of Units	0	2	2	1	2
Cutthroat Lakes	# of Units	0	3	2	3	0
Throne River/Honker Divide Canoe Route	# of Units	0	9	9	6	4
ROS Settings						
Change in Area of Unroaded Settings	Acres	0	-82,775	-54,118	-59,906	-39,673
Change in ROS at Existing Recreation Sites	# of sites	16	16	16	16	16
Change in ROS at Potential Recreation Sites	# of sites	15	15	15	15	15
Cultural Resources						
Sites Affected						
Direct Effects	# of sites	0	0	0	0	0
Risk of Indirect Effects	# of sites	0	13	0	0	0

Summary

Table S-4

Landscape Zone Effects

1. HONKER WATERSHED

Alternative 1

No units harvested or roads constructed; watershed functions, water quality, fisheries habitat maintained.

Alternative 2

5,940 acres harvested within the watershed and 109 miles of road of constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation.

Alternative 7

4,967 acres harvested within the watershed and 95 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation.

Alternative 8

4,353 acres harvested within the watershed and 78 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation.

Alternative 9

2,743 harvested within the watershed and 43 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation.

2. HONKER BLOCK

Alternative 1

No units harvested or roads constructed. Ability to function as a medium old-growth block maintained.

Alternative 2

2,390 acres harvested and 56 miles of road constructed. Ability to function as a large old-growth block substantially reduced.

Alternative 7

2,390 acres harvested and 56 miles of road constructed. Ability to function as a large old-growth block substantially reduced.

Alternative 8

1,205 acres harvested and 30 miles of road constructed. Ability to function as a large old-growth block moderately reduced.

Alternative 9

345 acres harvested and 7 miles of road constructed. Ability to function as a large old-growth block slightly reduced.

3. HONKER SCENIC CORRIDOR

Alternative 1

No units harvested or roads constructed. Recreational and visual, and resources maintained at present levels.

Alternative 2

528 acres of harvest and 11 miles of road constructed. No visible units or roads. Recreational and visual resources would be impacted by changes in the unroaded character of the area and acces-related effects.

Alternative 7

528 acres of harvest and 11 miles of road constructed. No visible units or roads. Recreational and visual resources would be impacted by changes in the unroaded character of the area and acces-related effects.

Alternative 8

223 acres of harvest and 5 miles of road constructed. No visible units or roads. Recreational and visual resources would be somewhat impacted by changes in the unroaded character of the area and acces-related effects.

Alternative 9

117 acres of harvest and 4 miles of road constructed. No visible units or roads. Recreational and visual resources would be somewhat impacted by changes in the unroaded character of the area and acces-related effects.

4. BAIRD PEAK LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

220 acres of harvest and 3 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 7

220 acres harvested and 3 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 8

90 acres of harvest and 0.5 miles of road constructed. No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 9

90 acres of harvest and 0.5 miles of road constructed. No units harvested or roads constructed. Ability to function as a corridor maintained.

5. GOSHAWK POST-FLEDGING AREA LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

74 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 7

74 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 8

74 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 9

25 acres harvested and 1 mile of road constructed. Ability to function as a corridor maintained.

Table 2-4 (continued)

Landscape Zone Effects**6. GOSHAWK POST-FLEDGING AREA****Alternative 1**

No units harvested or roads constructed. Ability to function as post-fledging area and small old-growth block maintained.

Alternative 2

118 acres harvested and 2.5 miles of road constructed; within guideline limits. Ability to function as a post-fledging area and small old-growth block slightly reduced.

Alternative 7

118 acres harvested and 2.5 miles of road constructed; within guideline limits. Ability to function as a post-fledging area and small old-growth block slightly reduced.

Alternative 8

83 acres harvested and 2 miles of road constructed; within guideline limits. Ability to function as a post-fledging area and small old-growth block slightly reduced.

Alternative 9

No units harvested or roads constructed. Ability to function as a post-fledging area and small old-growth block maintained.

7. UPPER CUTTHROAT LAKES**Alternative 1**

No units harvested or roads constructed. Recreational, visual, wildlife, and aquatic resources maintained at present levels.

Alternative 2

No units harvested or roads constructed. Recreational, visual, wildlife, and aquatic resources maintained at present levels.

Alternative 7

No units harvested or roads constructed. Recreational, visual, wildlife, and aquatic resources maintained at present levels.

Alternative 8

No units harvested or roads constructed. Recreational, visual, wildlife, and aquatic resources maintained at present levels.

Alternative 9

No units harvested or roads constructed. Recreational, visual, wildlife, and aquatic resources maintained at present levels.

8. DRUMLIN FIELD**Alternative 1**

No units harvested or roads constructed. Ability to provide old-growth habitat, winter range, and wetland habitat completely maintained.

Alternative 2

792 acres harvested and 18 miles of road constructed. Ability to provide old-growth habitat and winter range moderately reduced. Wetland values and functions maintained through BMP's.

Alternative 7

682 acres harvested and 16 miles of road constructed. Ability to provide old-growth habitat and winter range moderately reduced. Wetland values and functions maintained through BMP's.

Alternative 8

664 acres harvested and 15 miles of road constructed. Ability to provide old-growth habitat and winter range moderately reduced. Wetland values and functions maintained through BMP's.

Alternative 9

223 acres harvested and 6 miles of road constructed. Ability to provide old-growth habitat and winter range slightly reduced. Wetland values and functions maintained through BMP's.

9. 30 ROAD CORRIDOR**Alternative 1**

No units harvested. Visual disturbance is unchanged.

Alternative 2

365 acres harvested and 9 miles of road constructed. Visual disturbance changes from low to high.

Alternative 7

255 acres harvested and 7 miles of road constructed. Visual disturbance changes from low to high.

Alternative 8

348 acres harvested and 9 miles of road constructed. Visual disturbance changes from low to high.

Alternative 9

160 acres harvested and 5 miles of road constructed. Visual disturbance changes from low to moderate.

10. RIO ROBERTS WATERSHED**Alternative 1**

No units harvested or roads constructed. Watershed functions, water quality, fisheries habitat maintained. Ability to function as an undesignated control watershed completely maintained.

Alternative 2

829 acres harvested and 11 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation. Ability to function as unofficial control watershed significantly reduced.

Alternative 7

No units harvested and 1 mile of road constructed to access units outside of watershed. Watershed functions, water quality, fisheries habitat maintained. Ability to function as unofficial control watershed completely maintained.

Alternative 8

654 acres harvested and 10 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation. Ability to function as unofficial control watershed significantly reduced.

Alternative 9

221 acres harvested and 3 miles of road constructed. Watershed functions, water quality, fisheries habitat maintained by unit and road design and BMP implementation. Ability to function as unofficial control watershed slightly reduced.

Summary

Table 2-4 (continued)

Landscape Zone Effects

11. RIO ROBERTS LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

307 acres harvested and 3 miles of road constructed. Ability to function as a corridor moderately reduced.

Alternative 7

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 8

177 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 9

No units harvested or roads constructed. Ability to function as a corridor maintained.

12. RIO ROBERTS RESEARCH NATURAL AREA

Alternative 1

No units harvested or roads constructed. Ability to function as an RNA maintained.

Alternative 2

No units harvested or roads constructed. Ability to function as an RNA maintained.

Alternative 7

No units harvested or roads constructed. Ability to function as an RNA maintained.

Alternative 8

No units harvested or roads constructed. Ability to function as an RNA maintained.

Alternative 9

No units harvested or roads constructed. Ability to function as an RNA maintained.

13. ANGEL LAKE LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

140 acres harvested and 4 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 7

140 acres harvested and 4 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 8

140 acres units harvested and 4 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 9

140 acres harvested and 4 miles of road constructed. Ability to function as a corridor slightly reduced.

14. BALLS LAKE LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

262 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 7

262 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 8

220 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

Alternative 9

184 acres harvested and 2 miles of road constructed. Ability to function as a corridor slightly reduced.

15. KOGISH MOUNTAIN LATE-SUCCESSIONAL CORRIDOR

Alternative 1

No units harvested or roads constructed. Ability to function as corridor and a small old-growth block maintained.

Alternative 2

488 acres harvested and 10 miles of road constructed. Ability to function as a corridor slightly reduced. Ability to function as a small old-growth block maintained.

Alternative 7

488 acres harvested and 10 miles of road constructed. Ability to function as a corridor slightly reduced. Ability to function as a small old-growth block maintained.

Alternative 8

488 acres harvested and 10 miles of road constructed. Ability to function as a corridor slightly reduced. Ability to function as a small old-growth block maintained.

Alternative 9

488 acres harvested and 10 miles of road constructed. Ability to function as a corridor slightly reduced. Ability to function as a small old-growth block maintained.

Table 2-4 (continued)

Landscape Zone Effects**16. WESTERN PENINSULA****Alternative 1**

No units harvested or roads constructed. Ability to provide old-growth habitat, and provide for subsistence resources is maintained.

Alternative 2

1,038 acres harvested and 41 miles of road constructed. Ability to provide old-growth habitat and provide for subsistence resources is significantly reduced.

Alternative 7

No units harvested or roads constructed. Ability to provide old-growth habitat, and provide for subsistence resources is maintained.

Alternative 8

357 acres harvested and 15 miles of road constructed. Ability to provide old-growth habitat and provide for subsistence resources is slightly reduced.

Alternative 9

332 acres harvested and 14 miles of road constructed. Ability to provide old-growth habitat and provide for subsistence resources is slightly reduced.

17. ELEVENMILE LATE-SUCCESSIONAL CORRIDOR**Alternative 1**

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 2

100 acres harvested and 4 miles of road constructed. Ability to function as a corridor moderately reduced.

Alternative 7

No units harvested or roads constructed. Ability to function as a corridor maintained.

Alternative 8

100 acres harvested and 4 miles of road constructed. Ability to function as a corridor moderately reduced.

Alternative 9

76 acres harvested and 3.7 miles of road constructed. Ability to function as a corridor moderately reduced.

18. ELEVENMILE BLOCK**Alternative 1**

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance.

Alternative 2

449 acres harvested and 13 miles of road constructed. Ability to function as a small old-growth block significantly reduced. Visual disturbance changes from none to moderate.

Alternative 7

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance.

Alternative 8

100 acres harvested and 4 miles of road constructed. Ability to function as a small old-growth block slightly reduced. Visual disturbance changes from none to low.

Alternative 9

76 acres harvested and 3.7 miles of road constructed. Ability to function as a small old-growth block slightly reduced. Visual disturbance changes from none to low.

19. WESTERN SHORELINE LATE-SUCCESSIONAL CORRIDOR**Alternative 1**

No units harvested or roads constructed. Ability to function as a corridor maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 2

148 acres harvested and 5 miles of road constructed. Ability to function as a corridor slightly reduced. Visual disturbance changes from none to moderate. Slight risk of indirect impacts to cultural resources.

Alternative 7

No units harvested or roads constructed. Ability to function as a corridor maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 8

No units harvested or roads constructed. Ability to function as a corridor maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 9

No units harvested or roads constructed. Ability to function as a corridor maintained. No change in visual disturbance. No effect to cultural resources.

20. SALT LAKE BAY BLOCK**Alternative 1**

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 2

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 7

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 8

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance. No effect to cultural resources.

Alternative 9

No units harvested or roads constructed. Ability to function as a small old-growth block completely maintained. No change in visual disturbance. No effect to cultural resources.

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